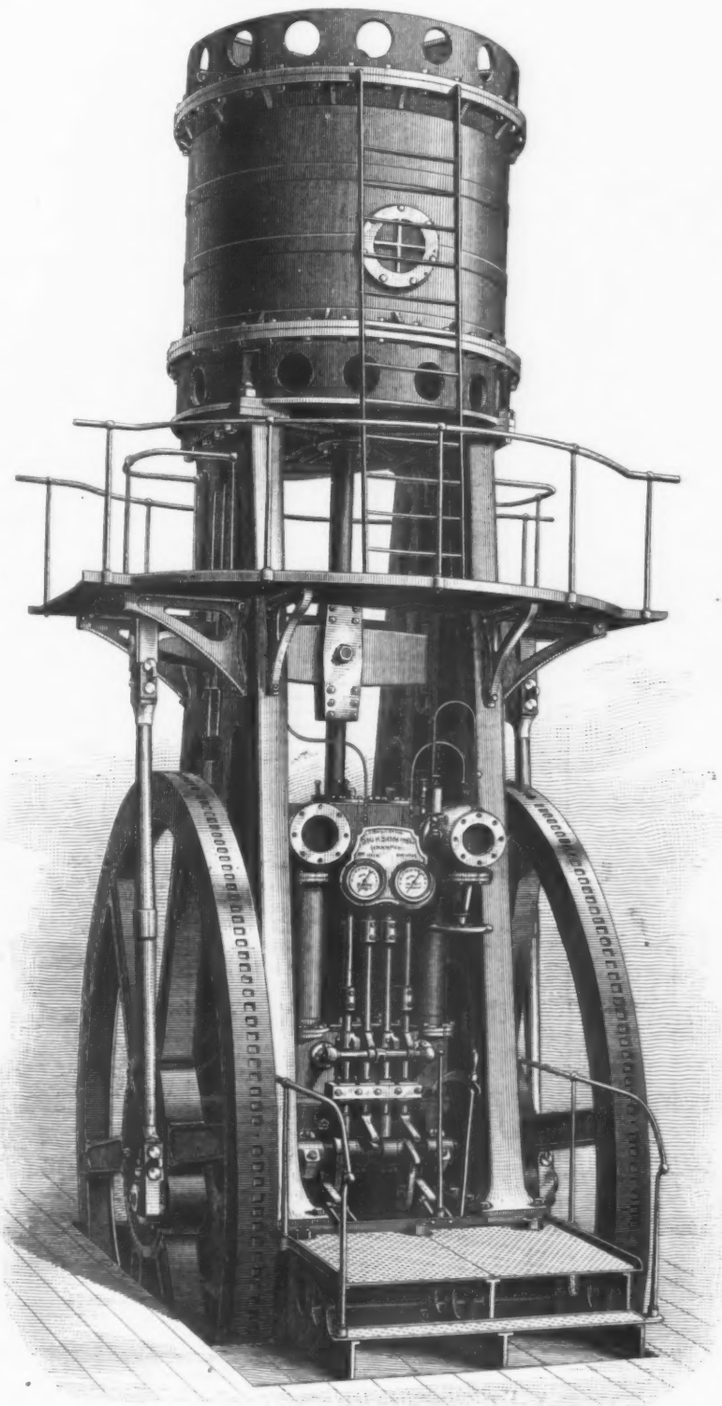
THE IRON AGE

THURSDAY, FEBRUARY 19, 1891.

The Dickson Blowing Engine.

The accompanying engravings show a standard blowing engine for blast furnaces built by the Dickson Mfg. Company of Scranton, Pa. The blowing cylinder is 84 inches diameter by 48 inches stroke, and is supported overhead by strong cast-iron columns. The steam cylinder is 36 inches diameter by 48 inches stroke and is carried by brackets between columns below. The crosshead between cylinders is of wrought iron, is guided in the columns and has spherical ends, to which are attached the upper ends of two connecting rods. The cranks for lower ends of connecting rods are formed in the hubs of the fly wheels. The main shaft rests in journals with removable babbitted boxes in the bed plate, and carries fly wheels and eccentrics. The steam and exhaust eccentrics operate a double poppet valve system which has proved to be satisfactory for this class of work. The air valves are of the single-beat center-spindle type, faced with leather, and have separable seats bolted to the main casting of the cylinder. The accompanying drawings show in detail the principal features in the construction of this blowing engine.



BLOWING ENGINE, BUILT BY THE DICKSON MFG. COMPANY.

In an eloquent tribute to the memory of the late Peter Cooper, the centennial of whose birth was celebrated at Cooper Union on February 12, Seth Low, LL.D., said with reference to the founding of the institution: "No one can listen to this summary of its purposes without appreciating that the Cooper Union is the worthy monument of a wise and good man. But the Cooper Union is more than a monument. It is even more than an educational institution of highest value to those who are fortunate enough to be numbered among its students. It is the eloquent and enduring expression of one of the profoundest teachings of Peter Cooper's long and useful life. It is as though he were still saying, through this union, to the rich men of New York, that the obligations of wealth are not fully met unless wealth is made to minister to the good of the community with a no less serious and steadfast purpose than it is made to minister to one's own advantage. In this city Peter Cooper made his wealth, and this community he made sharer in his great prosperity. New York needs more such men. Wealth is power, knowledge is power; but it is the man behind the power that determines its usefulness. It is the glory of Peter Cooper that he used his power well."

Standard Metal Ties.

Metal ties made by the Standard Metal Tie and Construction Company of New York have been in use on a portion of the tracks of the Chicago and Western Indiana Railroad for nearly 15 months, and during that time over 37,500 trains have passed over them. The cost of maintaining them has been so small as to be hardly worth taking into consideration. When the section needed tamping it was found that about one-third the time was consumed that would be required to tamp the same number of wooden ties. This was attributed to the fact that the bottom of the tie is nearer the surface, and consequently requires no digging and less power to raise the track sufficiently to allow the tamping to be done. The firmness with which the ends of the rails are held upon the foundation makes it impossible for them to move. The heads of the rails are perfectly even, and the usual "click, click" which the wheels make in passing over the ordinary joints on wooden ties has entirely disappeared, and the section when riding over it seems like one continuous rail.

While the ends of the rails on the wooden ties are slightly flattened, those on the steel ties are perfectly smooth and even, indicating the absence of the wheel blow at the joint. It was found that the wear was directly on top of the rail head. There has been no heaving or settling of the ties caused by the ground freezing and then thawing. The smoothness and uniform elasticity of the track is attributed to the broad fastening, which holds the rail so firmly on its foundation as to permit less rail deflection than with the wooden ties and spike fastenings. There have been no loose bolts or nuts. The above statements we take from a letter addressed to the Standard Metal Tie and Construction Company by John W. Clarke, G. R M. of the above railroad.

Chicago Tin Plate Interests.

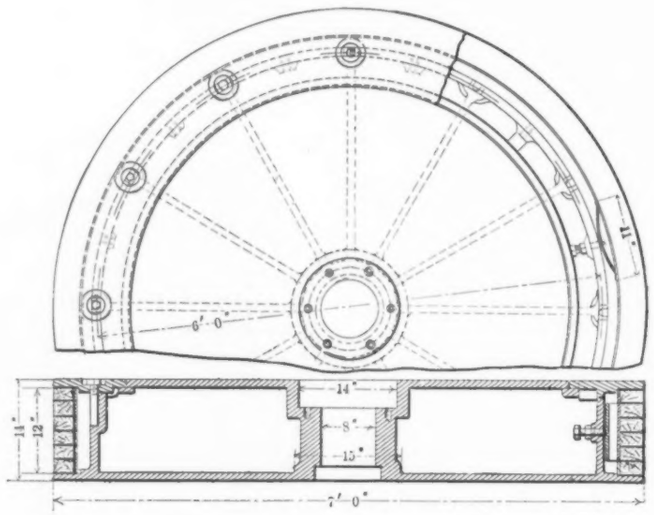
The Association of Western Packers of Canned Goods held their annual convention at Chicago on February 11, 12 and 13. An interesting feature of the occasion was a visit made on the afternoon of February 12 by the members of the convention to the extensive can factory of Norton Brothers at Maywood, where, perhaps, every one of them for the first time saw the process of manufacturing tin plate in actual operation. It was inspected with enthusiastic interest by all the visitors, and from the comments made the fact was plainly developed that the canned goods packers were heartily in favor of the efforts now being made to transplant the tin plate industry to this side of the Atlantic. The Messrs. Norton explained that their tin plate plant had but recently made a start, and that they did not claim a large output at present, but plans have been made for an early enlargement of this branch of their business which they have now demonstrated can be operated with success. The visitors were also shown the steel works and sheet mill intended for the manufacture of the black plates, and which are in a forward state of completion.

The can factory was in active operation in every department, and the wonderful machinery to every part of the can making process.

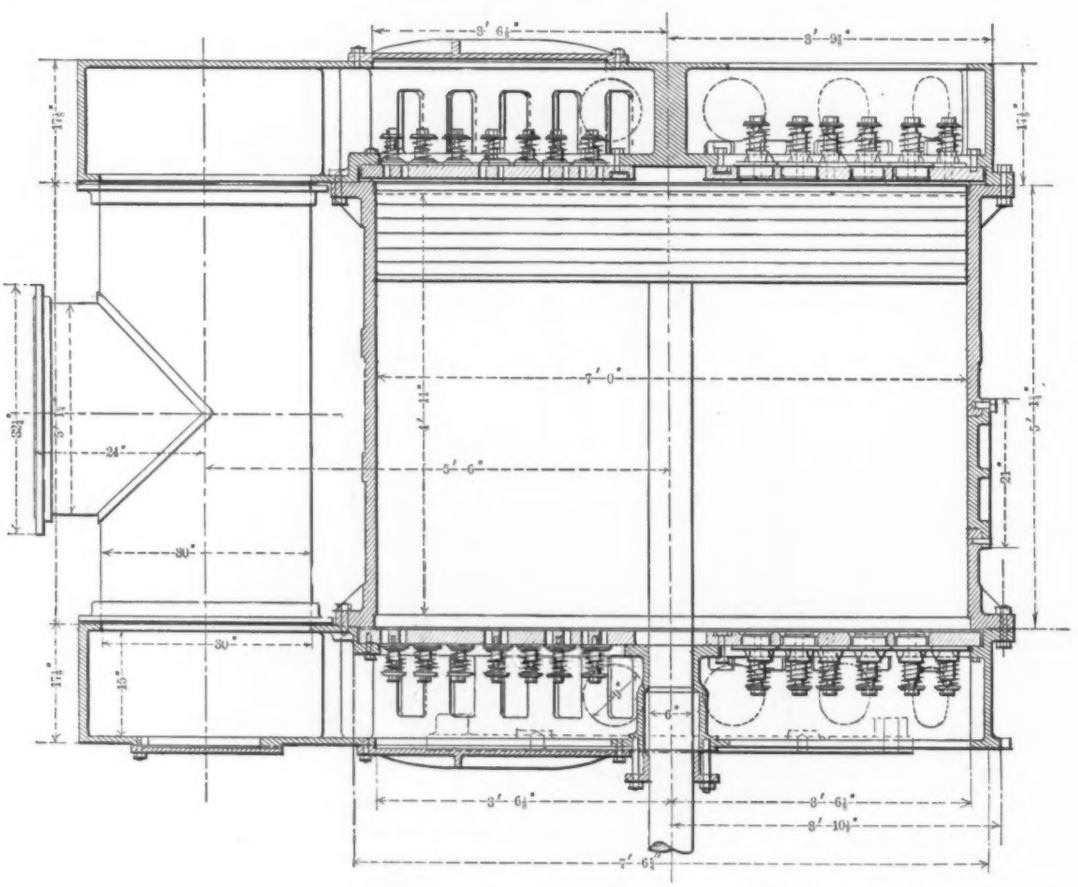
On the evening of the same day the members of the Association were tendered a banquet at the Tremont House, Chicago, by Norton Brothers, which proved to be of a more than usually social and pleasant character. At one of the business meetings of the Association the following address was delivered by O. W. Norton :

O. W. NORTON'S ADDRESS.

The many letters received by the house with which I am connected, since it became known that we had decided to begin the manufacture of tin plate, filled with the most enthusiastic congratulations, show beyond question that the canned goods packers as a whole believe fully in American tin plate, and whatever remonstrance they may have made in the past against an increase in the duty on imported plates was based on the theory that such increase would add to the cost of goods without influencing in the least the manufacture of the plates at home. Now that there is a prospect that we shall make our own plates that opposition is changed to hearty support.



Half Plan and Section of Air Cylinder Piston.



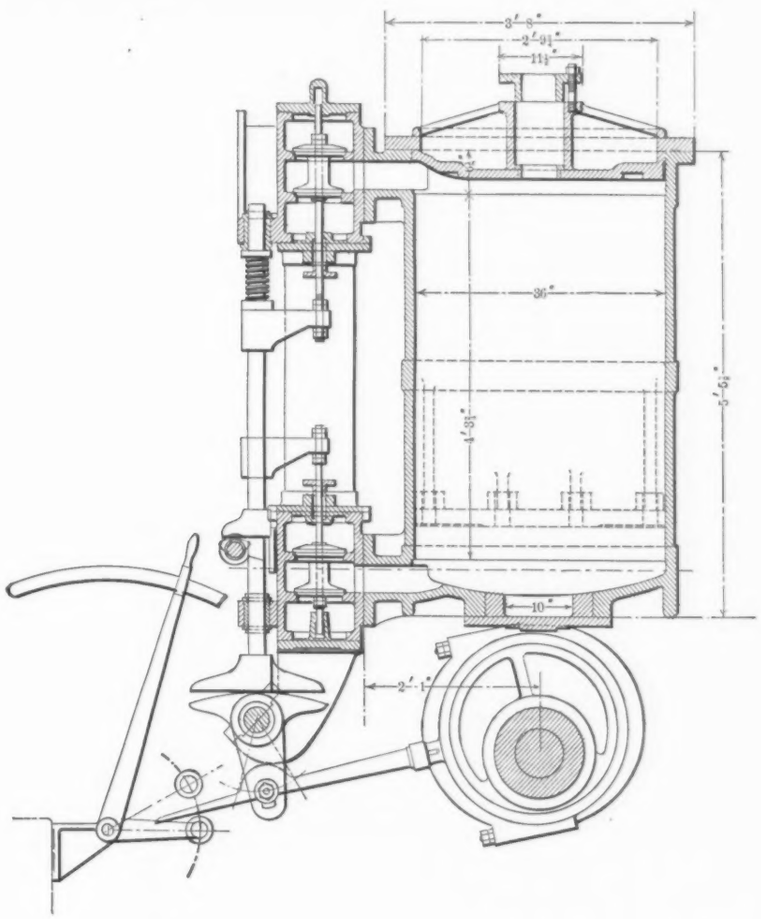
Vertical Section through Air Cylinder.

BLOWING ENGINE, BUILT BY THE DICKSON MFG. COMPANY.

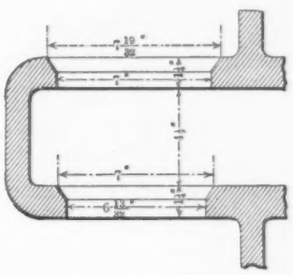
combination of automatic machinery drew forth admiring commendations. Many of the visitors had in the old days manufactured their own tin cans, and were consequently well able to thoroughly appreciate the tremendous advances made by Norton Brothers in their adaptation of automatic

The topic assigned to me is the present and futureinfluence upon the canned-goods industry of the American manufacture of tin plate. It is generally conceded that there would be no such manufacture without the encouragement afforded by a duty levied on imported plates for the purpose of giving American manufacturers an advantage over foreign competitors. The field has been open to any one to undertake such manufacture for many years, and a duty of one cent. per pound has been levied for the purpose of encouraging our people to engage in the business. Very few ventured to try it under such conditions, and their attempts were soon abandoned. No reason for the failure can be assigned except that the business was unprofitable. The difference in wages required by American and English workmen, and the fact that the latter had the advantage of many years' experience, made it impossible to get the business established here on a paying basis with an advantage of only 1 cent per pound. In pursuance of what has been the settled policy of the government for many years, the fostering of manufactures by the levying of duties high enough to enable us to compete successfully with other nations, Congress has increased the duty on tin plate from 1 cent to $2\frac{2}{10}$ cents per pound, the new duty to be levied on and after July 1, 1891.

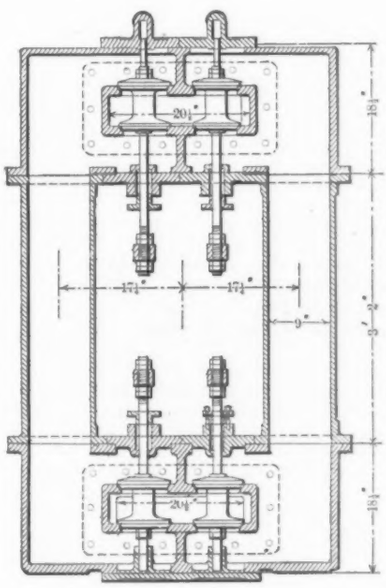
The first effect which this action will have upon the canned-goods industry is, of course, to increase the cost of the cans required in that business. The addition to the cost of the tin for the two principal sizes is aboutone-third of a cent on the No. 2 can, and one-half cent on the No. 3 can. Certainly no such addition to the cost of what may be considered the raw materials of the canning industry ought to be made without good reasons. These reasons we are to consider for a few moments this afternoon. The advocate of such an increase labors under one great disadvantage. Nearly all that he may say must be based on the hypothesis that a policy which has proved beneficial to the country in other lines of business will be equally so when applied to tin plate. He is met by the statement that he can give no positive assurance that his predictions of the planting of a prosperous business and the ultimate reduction in cost and improvement in quality of tin plate will ever be



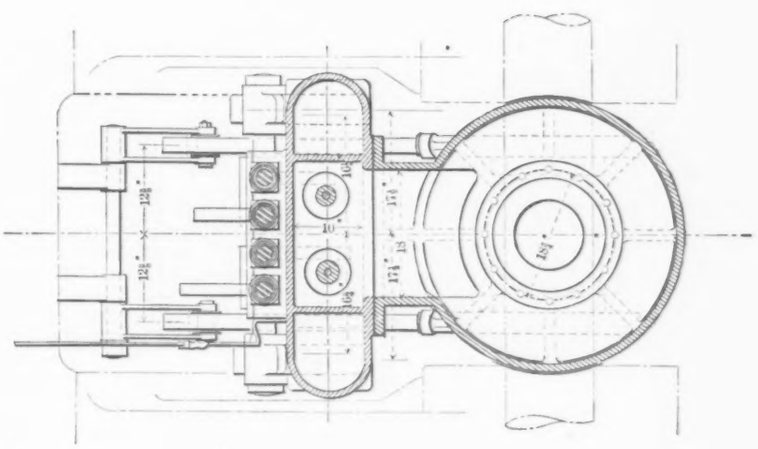
Vertical Section through Steam Cylinder, Valves and Valve Gears.



Steam Valve Seat.



Vertical Section through Steam Chest.



Sectional Plan of Steam Cylinder and Valves.

BLOWING ENGINE, BUILT BY THE DICKSON MFG. COMPANY.

fulfilled. It may all be the dream of an enthusiast which at best can only be realized after long years of effort, and at a cost far too great to make it desirable. Unfortunately, too, the discussion of the subject in the press has become a matter of partisan politics.

The statistics of the Board of Trade of Great Britain show that the total exports of tin plate in 1890 were 418,725 gross tons. Of this total amount 318,108 tons, more than three-fourths, was sent to the United States. The amount sent to all the rest of the world was only 100,617 tons. Germany and France, the other two principal manufacturing countries of Europe working under protective tariffs, make their own tin plates. Is it not strange that the United States, so progressive in other things, should for generations have been satisfied to do nothing to develop that industry, but send millions of money every year to England to support more than three-fourths of a business which is certainly regarded there as a desirable one? Suppose that the same relative protection had been given to the tin plate manufacture that was given to the manufacture of steel rails at the time that it was taken up in this country, can any one doubt that the results would have been as favorable? Look for a moment at the progress made in the United States in the manufacture of steel rails. The manufacture commenced in 1868. The duty was $28 per ton; the price was $158.50 per ton. In December last they were sold for less than $27 per ton. Prior to 1873 what little plate glass was used in this country was imported. In that year the first plate-glass mill in the country was started by Mr. De Pauw at New Albany, Ind. The business had to be learned, and Mr. De Pauw sunk a million dollars before he succeeded in getting the business on a paying basis. Other concerns met the same fate, but they persevered. New capital was put in, new machinery devised, and success came. The first plate glass made at New Albany sold for $2.50 per square foot. You can buy better glass in Chicago to-day for 75 cents per foot. Fifteen years ago only 5 per cent. of the plate glass used here was American. To-day everybody uses plate glass in stores and residences, even of moderate cost, and it is all of American manufacture. Only a few plates are imported now, and these are of the finest quality and most expensive sort, used for mirrors. It is needless to mention further examples of the development of American manufactures. The same story could be repeated with regard to scores of articles which suggest themselves to you as I speak. Why is not tin plate among the number? Is it a matter of so small importance that it has been overlooked? The 318,108 tons of 2240 pounds each, reduced to boxes of IC 14 x 20 plates, 108 pounds each, is equal to 6,597,796 boxes. Of course many of these plates were of other sizes, weights and qualities, but statistics of these details are not available. It will not be far from correct to say that in 1890 we imported 6,600,000 boxes of tin plate at an average cost of $5 per box, or $33,000,000 for the year's supply. In 1889 the amount was a little less. In 1888 it was considerably more. The country is increasing yearly in population and wealth. The canning of food increases much more rapidly. If the policy that has prevailed the last 25 years continues, between now and the year A. D. 1900 the people of the United States will pay for plates bought of the English more than $400,000,000. If instead of this the encouragement given to the manufacture of plates by our own people is continued, by the year 1900 we shall be exporting plates to England, and the greater part of this $400,000,000 will have been distributed among our own citizens.

But, say the opponents of the tariff which makes this possible, if we admit that this result will follow, it will cost the country $15,000,000 a year in taxes for the enrichment of the few fortunate individuals who engage in the business, and the game is not worth the candle. The matter is perfectly plain they say. The duty at 2.2 cents per pound on the amount of plates imported annually is $15,000,000. If it were not for this duty the people could buy the same quantity of plates for just so much less money. Among the newspapers that oppose protection by tariff there is perhaps no more able exponent of the opposite policy than the New York *Evening Post* or the weekly edition of that paper called the *Nation*. You are aware that Norton Bros. and several other firms have begun the manufacture of tin plate. That people might see that it is not absolutely impossible to make tin plate here, Mr. Niedringhaus of St. Louis sent to Washington and to other places an assortment of tinware made of plates of his own manufacture. The United States Tin Plate Company of Demmler, Pa., distributed a large number of sheets of their new tin plate on which was printed some Pennsylvania poetry. Norton Bros'. contribution consisted of tin rulers and No. 2 fruit cans with a label showing American flags and a statement that they were made from tin made by the firm at our works. The New York *Evening Post* referred to this as follows:

> The McKinley bill has imposed a new tax of $6,000,000 per annum on the people for their tinware and roofing material. This was in addition to a tax of $6,000,000 previously existing, the proceeds of which went into the public treasury. The new tax was imposed avowedly in order to divert the first $6,000,000 away from the treasury to the pockets of private individuals and to add thereto an equal amount. When the object of the bill is fully attained the whole $12,000,000 will be an annual subsidy to the tin-plate men. The latter have actually begun to pocket the bonus—so they say, at all events. We have received two or three samples of the article, the makers of which evidently consider that they are entitled to some credit for pocketing their proportion of the subsidy. A law has been passed to enable them to plunder the community, and they come forward gleefully and say: "We are doing it, we are doing it, *ecce signum*," and they think they ought to be applauded. There is not the slightest sign or probability that they will lower their demands or consent to take less than the bonus that the law provides for them

With the exception that it is written in much better style, this is a fair sample of the arguments used by such papers as oppose the tariff. It assumes that American manufacturers plunder the people of the amount of any duty levied and put the money in their own pockets. To make this true it would be necessary that the goods from the commencement of their manufacture should cost no more to produce than in England. If our material cost no more, few will maintain that we pay our workmen no more. The *Evening Post* would not make that claim. The difference in labor at least must be paid by the manfacturer out of his plunder. It seems a pity that such misrepresentations should be made by the great newspapers whose proper function is to spread information. The changes are rung on such statements until a large proportion of the people believe that the men who have built up our manufactures are plundering them of the amount of duty levied on their goods, in addition to a reasonable profit on the business, and the plunder goes to swell their already enormous fortunes, while the poor victims sweat and toil on in poverty. It is due largely to such statements in the press that so large a proportion of the people believe, for instance, that steel rails cost them the English price plus the duty. They think that the selling price is reached by taking the foreign cost and adding freight and duty, and that the manufacturers are continually asking Congress to increase the duty, so that with the same cost they can increase their selling price without fear of foreign competition. The market price of steel rails is a sufficient answer to such a theory. For several years past the duty on steel rails was $17 per ton. Leaving out of the calculation the difference in wages paid to the workmen, we are producing rails much cheaper to-day than the English are. We do this by our better machinery. Does any one suppose that the price of rails would be what it is to-day if the United States had not by a heavy duty stimulated our people to start the manufacture here? For a time prices were very high. The same outcry which is now being made against the duty on tin plate was made against the proposed duty of $28 per ton. One of our representatives from Illinois, Mr. Marshall, declared in the House of Representatives, when the bill was under discussion, "It will deprive the railroad companies of the use of steel rails except at enormous cost." To-day that enormous cost is less than the duty originally imposed.

Good steel tin plates of the quality used for cans are worth to day in Chicago from $5.75 to $6 per box under the present duty of 1 cent per pound. The New York *Evening Post* and other papers of that class ridicule the prophecy recently made by me that within three years, or five years at most, better plates of American manufacture will be sold in Chicago at $4. In 1868, when the manufacture of steel rails was begun, the selling price was $158.50 per ton. In 1869 it was $132.25; in 1870 it was $106.75; in 1871, $102.50. The decline in the first three years was more than one-third. In 1875 the price was $68.75; less than half what they cost seven years before. In 1878, after ten years of progress, the price had declined to $42.25, but little more than one-fourth the original price. Since that time the price has been working down until now it is about equal to the original duty.

The business which we have to transfer from England is susceptible of many mechanical improvements. There is probably no industry in the world of the same magnitude in which the methods employed are so crude. To-morrow you will visit the works of Norton Bros., at Maywood. You will see in operation there a small plant of the apparatus used for tinning by the English method. We took pains to get the best machinery used there. Fair work can be done by it, but we are not very proud of it except as an example to shun. When you see it in operation you will not think it strange that we are very confident of our ability to devise machinery that will do the work better, and that we are already constructing machines to work in a more American fashion. You will see at these same works automatic machinery turning out the cans you use at the rate of 300,000 per day. The cans are moving swiftly through the various stages of manufacture, hardly touched by hand. Many of you will remember how the first machine of that plant looked when it began its work in 1880. You saw it, but never dreamed of the system that would grow from it in less than five years. When you contrast the present best methods of tin-plate making with what has been done with machinery in can making the editors of free-trade papers may doubt the probability of mechanical progress in that direction, but you will not.

It is asked why, if the art is so crude, have not the English led the way in introducing machinery? They have kept step with America in producing steel, surpassed us possibly in some particulars. The answer is not that improvements are impracticable, but that, having no competition, they have had no stimulus to spend money on experiments. Another reason is found in the

peculiar condition of the industry. All the plates used in the United States are made in a little valley in Wales. The whole population of this valley, men, women and children, are engaged in the business. The fathers and grown sons work in the rolling mills and at the other operations requiring strength. The mothers and younger children do the cleaning of grease from the plates, the rubbing, sorting, packing—in short, all the work which their strength will permit. If the proprietor wishes to put in a machine which will save the work of 50 women and children, he is met at the door by a delegation of his rolling mill hands with a threat to strike. They cannot see their wives and children deprived of their privileges of helping to support the family. Nowhere in the world has the introduction of labor-saving machinery and other improvements been more bitterly resisted than among the tin-plate workers of Wales. The workmen regulate the amount of the output of each mill, and strike if the proprietor proposes to add anything to his plant or increase his product.

There is a certain amount of technical knowledge required in the business, not unlike that required in canning. We are told that the operation is nothing but dipping iron plates in melted tin. Canning corn is a very simple matter; you have only to cut the green corn from the cob, put it in the can, seal it up, and cook it a little, and you have canned corn. That is all there is of it, but some of you have lost money on swelled corn, notwithstanding the simplicity of the operation. There are details in the manufacture of tin plate, such as the proper composition of the pickle, the temperature of the molten tin and grease, and matters of that kind, which American manufacturers will sink some money in learning, but they will learn them, and it will go hard if they do not better the instruction. The London *Ironmonger*, in a recent number, said:

> The American manufacturers will have many difficulties to contend with, no doubt, but they have accomplished too much already in metallurgy to be daunted by a process such at tin-plate making. We do not indulge in prophecy, but if we did we should be inclined to forecast that within three years from now a great many tin plates will be made in the United States. As a natural sequence of that impression, we would advise the Welsh manufacturers to lose no time in endeavoring to open up new markets.

What effect has all this on the canning industry? That it begins by raising the price of cans is evident. Granting that it will in time reduce them, is there any prospect that it will also increase the demand for our goods? Here, again, there is nothing to offer but promises or prophecies. We know that heretofore we have had no tin-plate workmen in this country to feed. The home manufacture of our tin plate, then, means the creation of an absolutely new business, amounting to millions of money annually.

You will see to-morrow at Maywood a steel furnace and rolling mill erected since your last visit for this tin-plate business. Maywood is not a large city, and but for this tin-plate making would have no rolling mill. Follow with me for a moment the effect of this new enterprise on people who have no direct interest in tin plate or in tariff discussion. There was a new piece of work here even for the common laborers which they would not have found but for this rolling mill in digging and wheeling out the dirt for the excavation. A builder whom we had never seen or heard of before received a contract amounting to several thousand dollars for the mason work. There were orders for material given to brickmakers, stone quarry men, dealers in lime and sand. A machine house received an order for heavy engines and boilers; a Pittsburgh firm a contract for the steel furnace; another a contract for the iron roof; an Ohio firm an order for a large electric crane, dynamo, engines, &c. Here is, say, $100,000 of absolutely new business scattered about the country among people who do not deal in tin plate which they would not have had if we had continued buying our plates in England. Now the mill is up there will be new business for coal miners, ore and iron dealers, and a new demand for common laborers and skilled furnacemen in making and rolling the steel; new business for railroads in hauling coal and iron. How much of new business this one plant will create for the country cannot be stated in dollars and cents to-day, but whatever the amount, every dollar's worth is a positive addition to the productions of the United States, a new creation.

Our firm paid in 1890 about $1,000,000 for tin plate. Every box of it came from England, and our money was sent there to pay for it. The benefit the canners received from that money sent across the sea can be measured by the amount of orders you received for canned goods to feed the English or Welsh workmen. You know those orders were light. The wages paid there do not permit those workmen to indulge much in the luxury of canned corn or tomatoes. Suppose that $1,000,000 to be expended among workmen here. Multiply this one small mill by the scores that are to spring up in other parts of the country. Transfer from England to the United States the business of making the $400,000,000 worth of tin plates which this country will surely require in the next ten years, and ask yourselves what the effect will be on the canned goods business. We may be reasonably assured that the first increase in cost will be followed within a short time by cheaper and better cans than were ever made under the old *régime;* that the demand for canned goods will increase and the business prosper, and we shall wonder that a great nation like the people of the United States ever waited until 1891 to supply themselves with so necessary an article as tin plate.

Through Rates on Imports.

The subject of unfair discrimination against New York and Philadelphia by certain transportation lines has received earnest attention from the Board of Trade and Transportation of this city, which submitted its case to the Interstate Commerce Commission after protracted hearings. All the trunk lines in the United States and Canada were included in the investigation. The commission fully sustained the position of the board, and commanded all of the defendants who were proved to be engaged in the practice to cease and desist therefrom, and to charge from the seaboard to the interior the same rates upon all business, whetner import or domestic. The discrimination between shipments to California from Liverpool via New Orleans and those from New York, Chicago and New Orleans is shown in a tabular statement. Carpets, for instance, paid $1.07 per 100 pounds on importations, against $2.88 from New Orleans, $3.30 from New York and $3 from Chicago. With buttons the figures were $1.07, $3.74, $4.20 and $3.90; boots and shoes, $1.07, $3.70, $4.20 and $3.90; cordage, 89 cents, $1.25, $2.15 and $1.30; cutlery, $1.07, $3.26, $3.70 and $3.40; dry goods, $1.07, $3.74, $4.20 and $3.90; groceries, 89 cents, $3.70, $4.20 and $3.90. A prominent railroad opponent to counsel of the board said: "The case is second in importance to none heretofore heard by the commission, involving, as it does, practically the American import traffic from every quarter of the globe and the consideration of principles of a world-wide sweep. Your success in this case, in view of all the facts in the situation, is surely most remarkable."

The National Forge and Iron Company.

The National Forge and Iron Company of Chicago, whose works are at East Chicago, Ind., have just completed some important additions to their rolling-mill plant. These works were built last year, and were originally designed for working up scrap iron into merchant bar iron. The demand for bar iron made of all muck bar has, however, compelled them to build a puddle mill, which is an entirely separate building from the rest of the plant. The size of the mill is 100 x 200 feet, and the roof and sides are of corrugated iron. Within this building eight double puddling furnaces of standard pattern have been erected. Foundations for two more furnaces have been placed in the rear of the mill, which is left in such shape that an extension of the building can be made at any time to cover them. Room has also been provided for six more puddling furnaces, and the capacity of the muck mill has been arranged with a view to handling the entire product of the plant when it shall have been completed according to the full design. Four large boilers have been built over four of the puddling furnaces for the purpose of furnishing steam to the muck-mill engine.

The mill has been very conveniently arranged for handling material. The pig iron is delivered by railroad track at the end of the mill nearest the puddling furnaces. The latter are all in one end of building, while the other end is devoted to the muck mill and squeezers. Overhead railways have been provided to run the puddle balls from the furnaces to the squeezers, thus avoiding the use of buggies and floor plates. The muck rolls are 18 inches in diameter, and consist of two stands, three high. The rolls and squeezers were built by the Lloyd-Booth Company of Youngstown, Ohio. The engine is 26 x 32 inches, rated 500 horse-power, and was built by John H. Bass of Fort Wayne, Ind., after his own designs. It is a very powerful engine for the purpose, and is an excellent machine for rolling-mill work. Shears have been placed in the rear of the train of rolls for the purpose of cutting the muck bars into lengths for piling. In this mill Indiana block coal is used for puddling.

The merchant mill of this company is running full in every department, and is now turning out 100 tons of finished iron daily. The axle shop in connection with it is also in full operation. This shop is provided with three hammers, two being used for axles and one for shaped work. One axle hammer is a direct-acting 8000-pound steam hammer, and the other is a helve hammer. The shape hammer is rated at 1500 pounds. Three heating furnaces are in use in the axle shop, and the daily product is 25 tons.

The Product of the Scranton Mills.—Referring to our remarks of January 22 regarding the comparative product of the two Scranton mills, we have since learned that the total annual product of the Lackawanna Iron and Coal Company is very much larger than we supposed. Although the Lackawanna works only ran part time during December, their total rolling mill product for 1890, including heavy rails, light rails, blooms sold, billets and merchant bars, amounted to 195,170 gross tons. The Lackawanna Company do not put all their steel into heavy rails, having found it profitable to make a more varied product.

Automatic Nut-Tapping Machine.

The machine here illustrated is designed to automatically tap square or hexagonal nuts. It consists of five distinct parts, as follows :

1. The hopper or receptacle into which the blank nuts are thrown, and which discharges the nuts automatically into the straightening tube.

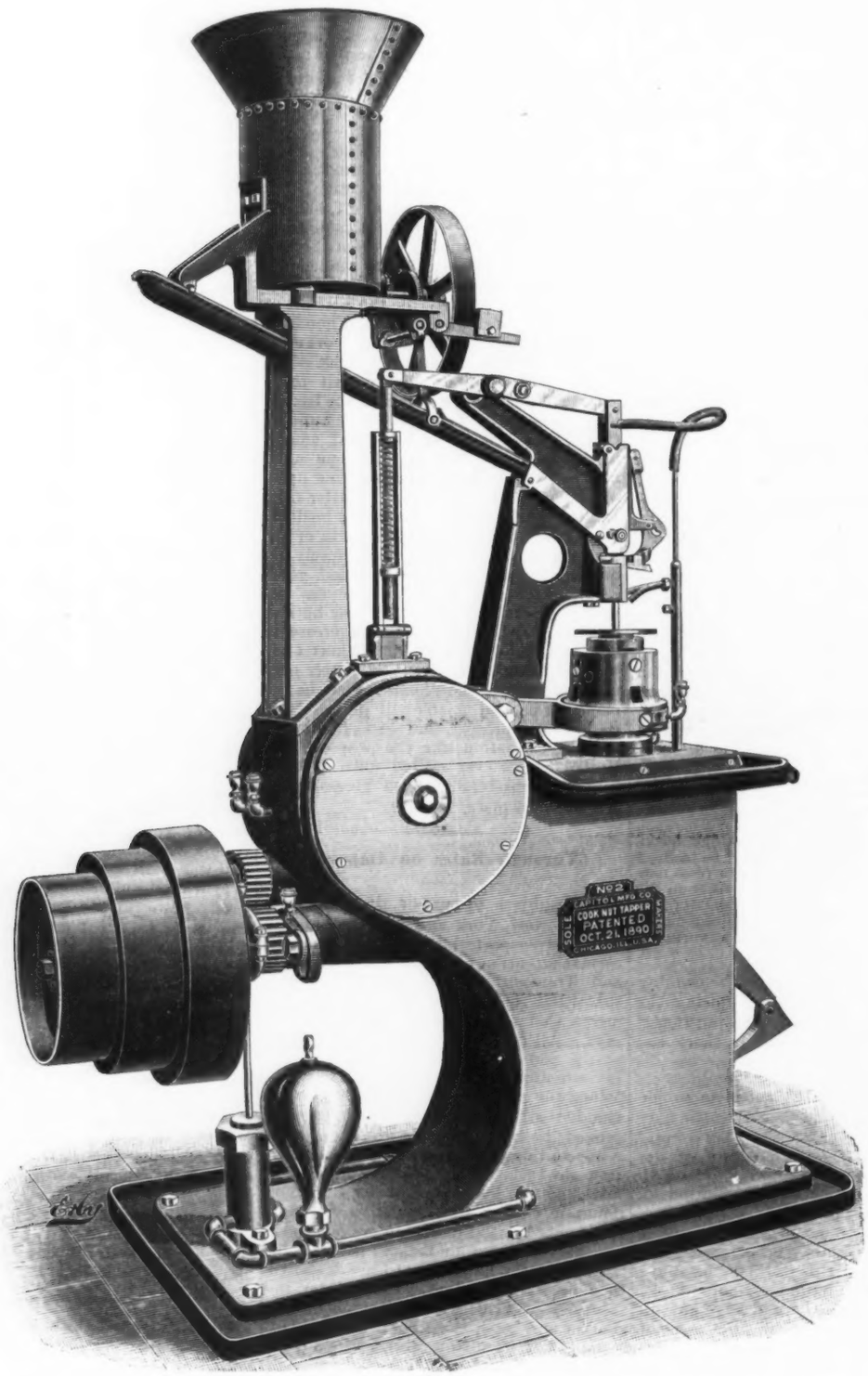
2. The straightening tube, for straightening the nuts and bringing them into position for the automatic feed mechanism, which holds the nuts and prevents them from turning while the nut is started on the tap and the process of tapping finished.

3. The chuck or mechanism for holding and revolving the tap, so designed as to permit the finished nuts to pass over the shank of the tap without removing or reversing it.

4. The base of the machine, which contains the parts necessary to give movement to the feed chuck.

5. The pump which supplies the machine with the necessary lubricant for tapping and cooling the tap. This lubricant passes through separating pans, and after being cleaned is used over and over again without unnecessary waste.

The machine is made by the Capitol Mfg. Company of Chicago, Ill., in four sizes, capable of threading nuts from the smallest to nuts with 1½-inch hole. It requires no attention except the filling of the hopper with nuts and grinding taps when they become dull. The taps being kept perfectly cool by a sufficient supply of lubricant, last longer than in ordinary nut tappers. The machines are built with one, two or three chucks. Machines having only one chuck have a greater capacity than any three, five or six spindle machines on the market. One man can attend to 10 or 12 of these machines without difficulty. The capacity of the machine varies according to size and quality of nuts to be tapped. Taking ½ inch square nuts, for instance, one chuck will tap from 20 to 30 per minute,



AUTOMATIC NUT-TAPPING MACHINE, BUILT BY THE CAPITOL MFG. COMPANY.

the number being regulated by the speed at which one tap can be run, which again is regulated by the quality of the nuts. A tap can, without difficulty, tap 30 ¼-inch steel nuts per minute. And as all the work is done automatically, it is impossible to miss a nut. Each additional chuck doubles the capacity of the machine without increasing the cost of labor. Nuts are tapped as fast as a tap can do it, and discharged into a box placed under the discharge spout. The machine is very simple in construction, has no complicated adjustments, and is not subject to excessive wear, as its construction prevents chips from getting into the working parts.

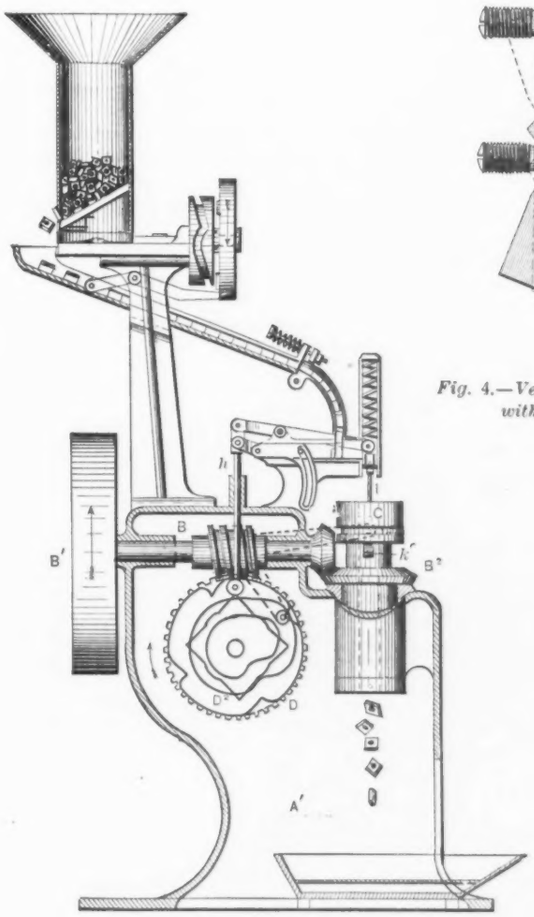


Fig. 2.—Vertical Sectional Elevation.

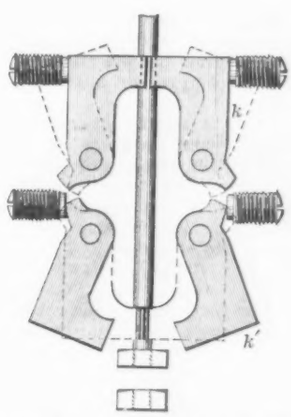


Fig. 4.—Vertical Section through Chuck, with Jaws in Same Plane.

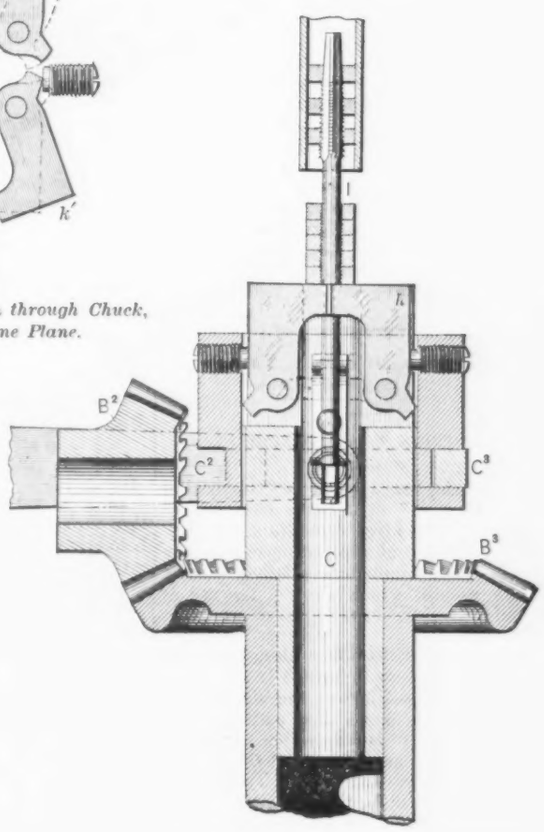


Fig. 3.—Vertical Section through Chucks and Operating Mechanism.

from the given quantity. The number of blanks in the conduit sufficient to stop or start the agitating mechanism may be varied as desired. The conduit is placed at such an angle that the blanks pass through it to the feeding mechanism by gravity, and it is made of such shape that the blanks as they fall in it and pass downward to the feeding mechanism are gradually turned so as to fall on one of their flat sides. The lower portion of the trough is curved, as shown in the vertical sectional elevation, Fig. 2, to a vertical position and joins the feed case at right angles. This feed case contains a T-shaped or three-way chamber, tom of the chamber. The blank is thus turned, and a further motion of the plunger carries it forward to a point immediately above the tap I and just below the spring plunger. Provision is made to insure that the blank will come to the proper place over the tap and for holding it at the proper point to be fed under the tap by the spring plunger. At the proper time the full force of the spring plunger is exerted against the blank, which is held upon the tap until it is formally engaged. The chuck C, which carries the tap, is hollow throughout its length, and is secured in a beveled gear, B^2, the hub of which turns in a suitable bearing in the

AUTOMATIC NUT-TAPPING MACHINE.

The above machines have been thoroughly tested, and are now placed on the market. The manufacturers have one of the machines continuously at work at their shops.

A more detailed description of the principal features of the machine follows: Immediately under the hopper, which is intended to receive the blank nuts, is an opening through which the blanks fall into a trough or conduit which conveys them to the feeding mechanism. This part of the machine is so adjusted that the blanks are discharged with sufficient rapidity to supply the screw-threading mechanism, and at the same time, to prevent more than the needed quantity being discharged, provision is made for automatically stopping or starting the mechanism agitating the hopper, and thus starting or stopping the flow of blanks whenever the number of blanks in the conduit is increased or diminished

the main portion of which stands horizontally and at right angles to the end of the conduit. The cross portion of the T-shaped chamber stands vertical, and is provided in its upper arm with a spring plunger of the size and shape of the blank to be tapped, the lower arm being formed in cross section to correspond with the blank to be tapped, and adapted to receive the upper end of the tap I supported at its lower end by the chuck C. Immediately back of the point where the conduit joins the chamber is a plunger adapted to feed the nut forward. The actuating mechanism is operated by rod *h*, the movement of which is controlled by the cam groove D^2 placed on the wheel D, which is operated through the worm on the shaft B. The blanks from the conduit fall in a vertical position into the chamber. As the plunger advances each blank is carried forward until the lower edge strikes against a projection formed on the bot-

main frame. This gear is driven by another gear, as shown in Fig. 2.

The tap is supported in a vertical position with the screw-threaded portion upward, the lower part or shank being of such a size as to permit the nut to drop off when released by the chuck mechanism. The tap is revolved by the chuck, and means are provided for automatically disengaging the tap at one point when it is engaged at another, thereby permitting the finished nuts to drop by their weight from one end of the tap without any intermission in the motion of the machine and without changing the longitudinal position of the tap. The main portion of the chuck, shown in vertical section in Fig. 3, consists of a sleeve provided at different points in its length with two pairs of jaws which are adapted to embrace the tap at different points and are placed preferably at right angles to

each other, although they may be supported in the same vertical plane, as shown in Fig. 4. The jaws k k' are each pivoted in a slotted opening in the sleeve, and are provided at the bottom with a cam projection. Surrounding the supporting sleeve is an outer collar provided in its periphery with a groove and with adjustable projections provided to bear against the outer surfaces of the jaws. This collar it adapted to revolve with the sleeve, and is also capable of longitudinal movement on the sleeve. As it is moved longitudinally in either direction its projections come against the cam projections on the respective jaws, causing them to separate, thus releasing the tap, the projections being so placed on the collar that when one pair of jaws is being opened the other pair is closed tightly against the tap. Supposing the upper pair of jaws to be closed on the shank of the tap for a time sufficient to tap a sufficient number of nuts, then the lower pair of jaws are closed on the shank and the upper pair opened, thereby permitting the tapped nuts to fall on the shank and to rest between the two pairs of jaws. The upper jaws then become clamped on the shank and the lower jaws opened, when the finished nuts are permitted to fall freely. The mechanism by which these several movements are accomplished is very simple, and there is little chance of the parts becoming deranged. The machine is positive and automatic in all its movements, and does its work rapidly and without attention.

Calculation of Blast Furnace Charges.

BY JOSEPH K. SURLS, READING, PA.

The method here given for calculating the proportions of furnace charges was evolved in seeking something at once simple and easy of application to take the place of the numerous existing fluxing tables, each of which involves the use of atomic weights, oxygen ratios or quantivalence.

It may be said of this discussion that too little attention is primarily given the ultimate composition of the slag, but it must be remembered that with a given ore and flux it is impossible to impose more than one condition upon the composition of the resulting slag. That is, the percentage of SiO_2, CaO, Al_2O_3, or MgO in the slag must be decided upon, and then the percentages of the other constituents of the slag will depend upon the composition of the ore and flux and upon the proportions used in the mixture.

Again, the price of some varieties of ore will not permit their use, except in limited quantities, in certain districts, and the phosphorus content will preclude the use of other ores, except in small proportion to the given ore burden.

In short, the furnaceman is compelled by the cost of materials and phosphorus content to use the most accessible materials for the production of the desired grade and quality of iron, irrespective of whether the resulting slags carry the typical proportions of constituents other than silica and lime. Of course, after the proper proportions of ore, fuel and flux have been determined, the percentage composition of the slag must be calculated, and any flagrant excess or deficit of alumina or magnesia corrected by a proper change in the ore mixture.

Fortunately silica and lime can usually be obtained in any proportion in the slag and, also, the slag forming materials of the stock obtainable in most districts will form a slag at once fusible and capable of producing any desired grade of iron.

It is most convenient to regulate the composition of the slag by the content of silica, and on this basis an empirical formula will be developed for the solution of the following problem :

To calculate the amount required of a flux of given composition to form with a given ore or fuel ash a slag containing a given percentage of silica.

It is evident that if we find the amount of flux required for a unit of each kind of fuel or ore, the total weight of flux required for a given charge will be readily found by multiplying the weight of each fuel or ore in the charge by its required percentage of flux and adding the results.

This method of at once individualizing each ore or fuel is in every respect the most convenient, especially in its application to changing the ore mixture, adding extra fuel charges, or altering the ore burden.

As usual, in slag calculations, one-half of the manganese present is considered as going into the slag as protoxide and the other one-half goes to the pig iron. Sulphur, silicon in the pig, and iron lost by volatilization and entering the slag are not taken into consideration.

Let a = parts SiO_2 in one part ore or fuel.
b = parts SiO_2 in one part flux.
c = parts slag forming ingredients in one part ore or fuel.
d = parts slag forming ingredients in one part flux.
s = ratio of SiO_2 in slag to weight of slag.
l = parts flux required for one part ore or fuel to form a slag having the silica ratio s.

Then for one part ore or fuel and l parts flux we have the equation:

$$s = \frac{a + bl}{c + dl}, \text{ from which } l = \frac{a - cs}{ds - b}.$$

In this value found for l we observe that the numerator contains only quantities belonging to the ore or fuel and the ratio s, while the denominator is entirely made up of values belonging to the flux and the ratio s. Hence, the denominator is constant for a given flux and a given silica ratio in the slag, and, the value for $ds - b$ being once determined, the amount of flux for a unit of any material may be readily calculated by simply determining the value of $a - cs$ for the given material and dividing by the constant value of $ds - b$.

It must also be observed that decimal parts, not percentage values, are used in this formula.

Example 1.—How much limestone of the composition given below will be required to flux the ore given to produce a 36-per cent. silica slag ?

Ore.		*Limestone.*	
Fe_2O_3	68.00	CaO	53.00
Al_2O_3	5.00	MgO	1.20
CaO	0.70	CO_2	43.30
MgO	0.30	Al_2O_3	0.50
P_2O_5	0.20	SiO_2	2.00
Water	11.80		
SiO_2	14.00		

From the data given we have for substitution in the formula:

$$l = \frac{a - cs}{ds - b},$$

$a = 0.14$
$b = 0.02$
$c = 0.05 + 0.007 + 0.003 + 0.14 = 0.20$
$d = 0.53 + 0.012 + 0.005 + 0.02 = 0.567$
$s = 0.36$

Substituting these values:

$$l = \frac{0.14 - \quad 0.2 \times 0.36}{0.36 \times 0.567 - 0.02} = 0.37.$$

In other words, this ore requires 0.37 or 37 per cent. of its own weight of flux to form a 36 per cent. silica slag.

Example 2.—What per cent. of limestone, whose composition is given in Example 1, will be required to flux the ash of a unit of fuel, carrying 10 per cent. ash, to form a 36 per cent. silica slag ?

Composition of Ash.		Referred in decimal parts to weight of fuel, these quantities become:	
SiO_2	50.00	SiO_2	0.05
Al_2O_3	30.00	Al_2O_3	0.03
Fe_2O_3	15.00	Fe_2O_3	0 015
CaO	3.00	CaO	0.003
MgO	2.00	MgO	0.002

For substitution in the formula $l = \frac{a - cs}{ds - b}$ we have :

$a = 0.05$
$b = 0.02$
$c = 0.085$
$d = 0.567$
$s = 0.36$

Substituting

$$l = \frac{0.05 - 0.085 \times 0.36}{0.36 \times 0.567 - 0.02} = 0.106$$

Which means that 10.6 per cent. of limestone is required to flux the fuel in question to a 36 per cent. silica slag.

In this way the percentage of flux required for any ore or fuel may be readily calculated, and the results tabulated for future reference.

In case of a very calcareous ore or basic fuel ash, a negative value may be obtained for l, which, of course, means that the material in question will flux itself, and in addition, replace as much limestone as is indicated by the numerical value of l obtained.

Or, a case might occur in which the ore or fuel ash would be self-fluxing, in which case $l = o$, and the formula becomes $\frac{a - cs}{ds - b} = o$, from which $a - cs = o$, or $a = cs$, which we know would be the case with a self-fluxing ore—*i. e.*, the content of SiO_2 in the ore equals the content of slag forming materials multiplied by the ratio s.

As illustrating the application of the formula to the entire burden of a furnace, we take the following:

Example 3.—A furnace is burdened with 6000 pounds of ore on a fuel base of 4000 pounds. How much limestone will be required to produce a 37 per cent. silica slag, with the composition and proportions of stock as given below ? The ore charge is divided into 12 parts.

	A Ore	B Ore.	C Ore.	D Ore.	Coal.	Coke.	Limestone.
Fe.....	60.00	58.00	50.00	40.00	.....	.....	.....
P	0.10	0.40	1.00	0.20	.....	.....	.....
Mn.....	0.40	2.00	0.10	1.00	.....	.....	.....
CaO . . .	2.00	0.20	0.10	. . .	0.50	0.20	53.00
MgO....	0.50	4.00	0.10	.....	0.20	0.10	1.20
Al_2O_3...	3.00	3.00	0.50	4.00	3.00	4 00	0.50
H_2O ...	.....	.....	.....	9.30	.....	.....	.....
SiO_2....	5.00	6 00	25.00	26.40	5 00	6.0)	2.00
Pounds in one charge.	1500.	1500.	1000.	2000.	3000.	1000.	

One-half the manganese will be calculated to MnO as a slag component.

We will first find the value of the constant $ds - b$. From the above limestone analysis we have—

$ds - b = 0.567 \times 0\ 37 - 0.02 = 0.1898.$

Then,

For		Per cent.
A ore, l =	$\frac{0.05 - 0.1076 \times 0.37}{0.1898} = 0.0532$	= 5.32
B ore, l =	$\frac{0.06 - 0.145 \times 0.37}{0.1898} = 0.0332$	= 3.32
C ore, l =	$\frac{0.25 - 0.2577 \times 0.37}{0.1898} = 0\ 814$	= 81.4
D ore, l =	$\frac{0.26 - 0.3995 \times 0.37}{0.1898} = 0.589$	= 58.9
Coal, l =	$\frac{0.05 - 0.085 \times 0.37}{0.1898} = 0.067$	= 9.7
Coke, l =	$\frac{0\ 06 - 0.103 \times 0.37}{0.1898} = 0.115$	= 11.5

The number of pounds of stone required will be—

For A	ore, 0.0532 × 1500.	=	79.8 pounds.
For B	ore, 0.0332 × 1500.	=	49.8 pounds.
For C	ore, 0.814 × 1000.	=	814.0 pounds.
For D	ore, 0.589 × 2000.	=	1178 0 pounds.
For Coal	ore, 0.097 × 3000.	=	291.0 pounds.
For Coke	ore, 0.115 × 1000.	=	115.0 pounds.
Total.....	....	=	2527.6 pounds.

In round numbers, for convenience in weighing, say, 2526 pounds, which divided into six barrows, would give 421 pounds to the barrow.

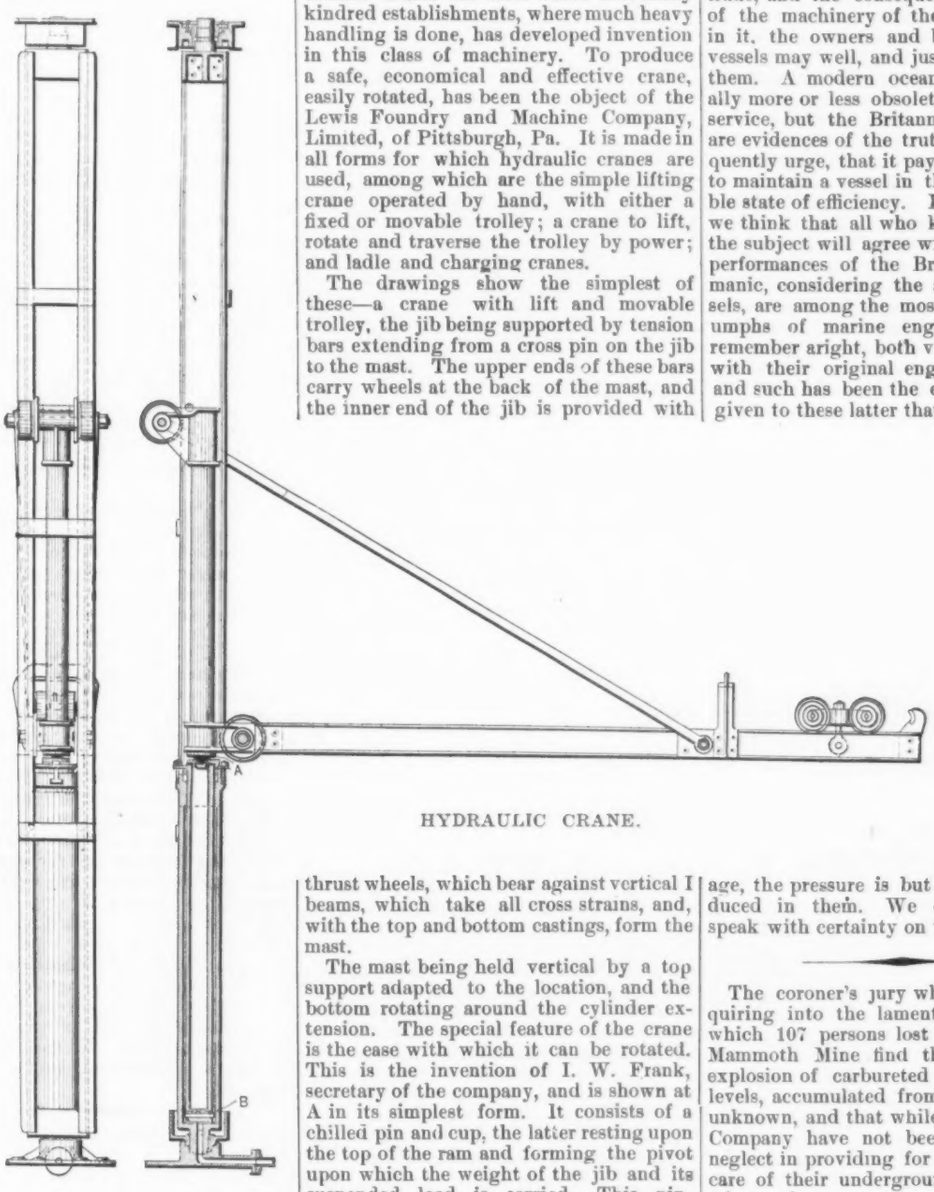
The percentage composition of the above slag may be computed as usual from the above table by dividing the total weight of each constituent by the total weight of slag.

From Chicago to the Sea.—The providing of an artificial waterway that would enable vessels weighing with their cargoes 5000 net tons, and having a draft of 20 feet, to trade between Liverpool and the great lakes, formed the subject of an interesting paper from E. L. Corthell, read before the Canadian Society of Civil Engineers. The two principal ship railways that he discussed were one leading from Benton Harbor in Lake Michigan to Munroe on Lake Erie, a distance of about 160 miles, and the Hurintario Ship Railway running between Georgian Bay and Lake Ontario, a distance of 66 miles, and costing about $12,000,000. By the aid of the Michigan, Peninsula and Hurontario Ship railways and the deepened canal system, Mr. Corthell estimated the cost of transportation per ton between Chicago and Liverpool at $3.66, or $2.59 less than by an all-rail route, or less than one-half the cost of all-rail transportation to New York and then by steamship to Liverpool.

Hydraulic Crane.

The rapid increase in the use of hydraulic cranes for steel works and many kindred establishments, where much heavy handling is done, has developed invention in this class of machinery. To produce a safe, economical and effective crane, easily rotated, has been the object of the Lewis Foundry and Machine Company, Limited, of Pittsburgh, Pa. It is made in all forms for which hydraulic cranes are used, among which are the simple lifting crane operated by hand, with either a fixed or movable trolley; a crane to lift, rotate and traverse the trolley by power; and ladle and charging cranes.

The drawings show the simplest of these—a crane with lift and movable trolley, the jib being supported by tension bars extending from a cross pin on the jib to the mast. The upper ends of these bars carry wheels at the back of the mast, and the inner end of the jib is provided with thrust wheels, which bear against vertical I beams, which take all cross strains, and, with the top and bottom castings, form the mast.



HYDRAULIC CRANE.

The mast being held vertical by a top support adapted to the location, and the bottom rotating around the cylinder extension. The special feature of the crane is the ease with which it can be rotated. This is the invention of I. W. Frank, secretary of the company, and is shown at A in its simplest form. It consists of a chilled pin and cup, the latter resting upon the top of the ram and forming the pivot upon which the weight of the jib and its suspended load is carried. This pin, being perfectly accessible for lubrication and protected from dirt, permits of easy rotation, no matter what part of the stroke the ram may occupy.

The cylinder and ram are stationary (non-rotative). The value of the former is that the water entrance to it is made through the bottom plate, which can be made part of the cylinder or by a joint, as shown; or the water may be taken in through the top of the ram. The ram is secured from rotation by a cross bar at B, moving in vertical slots cast in the cylinders. The packing of the ram is done in the usual manner, and from the fact that it does not rotate is easily maintained. The pivot A is replaced in the heavier cranes by alternate steel and phosphor-bronze plates, or by conical rollers or a ring of hardened steel balls.

Two Remarkable Steamers.

The Liverpool *Journal of Commerce* calls attention to what it justly describes as among the most remarkable triumphs of marine engineering when it records the recent performances of the White Star steamers, the Britannic and Germanic. "Although these vessels are nearly 17 years old, and have been in continuous commission, they not only maintain their position as first-class mail steamers, but have actually increased their speed. Bearing in mind," says the *Journal of Commerce*, "the trying nature of the Atlantic trade, and the consequent wear and tear of the machinery of the vessels engaged in it, the owners and builders of these vessels may well, and justly, take pride in them. A modern ocean steamer is usually more or less obsolete after ten years' service, but the Britannic and Germanic are evidences of the truth, which we frequently urge, that it pays in the long run to maintain a vessel in the highest possible state of efficiency. For our part, and we think that all who know anything of the subject will agree with us, the recent performances of the Britannic and Germanic, considering the ages of the vessels, are among the most remarkable triumphs of marine engineering. If we remember aright, both vessels are running with their original engines and boilers, and such has been the excess of strength given to these latter that, in spite of their age, the pressure is but little, if any, reduced in them. We cannot, however, speak with certainty on this point."

The coroner's jury which has been inquiring into the lamentable disaster by which 107 persons lost their lives in the Mammoth Mine find that there was an explosion of carbureted gas in the lower levels, accumulated from some cause yet unknown, and that while the H. C. Frick Company have not been guilty of any neglect in providing for the comfort and care of their underground employees and miners, they protest against the employment of fire bosses and pit bosses who are addicted to the use of malt and spirituous liquors, either when on or off duty. They also believe that there should be an amendment to the mining laws against the working of mines under water level with any flame or open light, but to compel the lighting of the same by electricity or safety lamps.

The Chicago Forge and Bolt Company (American Bridge Works), Chicago, have been awarded the contract for the West Taylor street viaduct, Chicago. The amount of iron and steel required on the work is 700 tons and consists of plate girder approach and one span of 190 feet. The work is to be finished by the middle of August.

Trade With Brazil.

The disproportion between the two sides of the account, exports and imports, in our trade with Brazil is strikingly shown by the detailed statement of commerce with that country just propared by the Treasury Department at Washington. The four articles which make up the bulk of our imports from Brazil were imported to the following extent for the fiscal years 1890 and 1889:

Articles.	1890.	1889.
Coffee	$45,664,127	$44,891,739
Goat skins	1,783,036	1,306,268
India rubber and gutta percha	9,157,248	7,569,005
Sugar	1,659,251	4,838,121

These articles make up nearly the whole of the total imports from Brazil to this country, of $59.318,756 in 1890 and $60.-403,804 in 1889 Although the imports of coffee are set forth as of greater value last year than the year before, the quantity was considerably less, being given at 373,920,849 pounds for 1889 and only 310,005,021 pounds for 1890. The total exports from this country to Brazil show a considerable advance for 1890. The total exports of domestic merchandise for 1889 were $9,351,081 and for 1890 $11,902,496. The following table shows the distribution of exports to Brazil by values, and in some cases by the quantities of the articles exported:

Articles.	Quantities.	Values.
Agricultural implements	.....	$49,610
Books, maps, &c	.....	136,610
Breadstuffs:		
Wheat, bush	1,768,234	$1,616,158
Wheat flour, barrels	687,342	3,304,990
All other	.....	52,508
Total	.....	$4,973,656
Chemicals, drugs, dyes, &c	.....	$165,667
Clocks and watches	.....	67,124
Coal, bituminous, tons	5,858	46,662
Cotton, manufactures		
Cloths, colored, yards	4,871,062	$383,593
Cloths, uncolored, yds	5,321,715	398,478
All others	.....	31,629
Total	.....	$813,700
Instruments and apparatus for scientific purposes	.....	$983,659
Iron and steel, manufactures of:		
Fire Arms	.....	$30,254
Machinery not elsewhere specified	.....	120,180
Saws and tools	.....	161,717
Sewing machines and parts	.....	60,558
Steam engines and parts of:		
Locomotive engines	41	377,719
Stationary engines	3	2.515
Boilers, &c	.....	11,164
All other	.....	174,552
Rosin, barrels	50,438	91,738
Mineral oils:		
Illuminating, gallons	8,695,291	876,641
Other, gallons	153,140	53,221
Provisions:		
Bacon, pounds	4,971,489	$387,038
Pork, pickled, pounds	927,490	69,835
Lard, pounds	17,920,500	1,509,255
All other	.....	26,298
Total	.....	$1,992,426
Soap	.....	$55,697
Spirits turpentine, galls	118,225	58,287
Vegetables:		
Beans and peas, bushels	19,170	43,189
All other	.....	1,050
Wood and manufactures of:		
Boards, deals and planks, 1000 feet	25,106	$380,250
Timber, sawed, 1000 feet	2,168	36,969
All other lumber or timber	.....	5,418
Manufactures of	.....	72,113
Total	.....	$494,750
All other articles	.....	$958,366
Total exports of domestic merchandise	.....	$11,902,496
Total exports of foreign merchandise	.....	69,718
Total exports of mdse.	.....	$11,972,214

The Northwestern Wire Mattress Company.

Among her extensive and prosperous manufacturing establishments the city of Kenoska, Wis., claims the credit of having one which is the largest of its kind in the world. This is the Northwestern Wire Mattress Company. The business represented by this company was started in 1870 by Z. G. Simmons & Co., the company being ex-Postmaster General Howe and J. H. Howe, his son. It was continued as a partnership until 1886, when it was incorporated, with Z. G. Simmons, president; J. H. Howe, vice-president; and R. F. Howe, secretary and manager. Its capital is $100,000, although over $250,000 are invested in the business Additions have been made to the original buildings from time to time, until the plant covers about 10 acres, the main building being a two-story brick, 100 x 400 feet. The buildings are filled with new and improved machinery, much of it having been invented by Mr. Simmons and his employees, for which patents are held by the company. The plant is situated on the bank of Lake Michigan, where a large part of the raw material for the factory is received in cargo lots directly from the lake. Of this the company keep on hand quantities, always having between 6,000,000 and 10,000,000 feet of maple lumber and proportionate quantities of wire and other material. They employ 200 operatives and make 1500 wire mattresses daily. This product is shipped by water and rail to all parts of the country, most of it being sold through Ames, Frost & Co. of Chicago, the general agents of the company. The man to whom, more than any one else, is due the credit of having built up this business is Z. G. Simmons. The idea originated with him, and his hand and his brain have been busy in the management of the concern since the day it was started.

Executions to a considerable amount were issued against the New York Smelting and Refining Company in favor of the First National Bank of New York. Judgments were also entered against J. Lissberger & Co., metal merchants, and Stroud & Co., metal brokers. The company were incorporated in 1876 with a capital stock of $70,000 and, it is said, are virtually owned by Lazarus Lissberger and his brother-in-law, Bernard Schutz, who composed the firm of L Lissberger & Co. The company have an extensive plant and did a business, it is claimed, of upward of $1,000,000 a year. Mr. Lissberger has been in business for about 30 years and was formerly of Holmes & Lissberger, who failed after the panic of 1873 with liabilities of $3,000,000, while engaged in a heavy transaction in copper.

The French Government has decided upon giving notice immediately to terminate those treaties and conventions of commerce which will expire on February 1, 1892, by giving 12 months' notice. The London *Statist*, in commenting on this, says: "The object, of course, is to allow of the new tariffs that are in preparation being brought into force at the beginning of next year. It will be in the recollection of our readers that the idea is to pass two tariffs—a minimum, which shall be applied to those nations which give corresponding advantages to French trade, and a maximum, to be applied to those countries which treat French trade unfavorably."

Petroleum Compared with Coal.

D. C. Pierce of Atlantic City, in a communication to the New York *Times*, points out the following advantages possessed by petroleum over coal as a fuel for steamships:

1. It is estimated that a barrel of petroleum will make as much steam as a ton of coal.

2. It requires from 75 to 100 stokers and coal heavers on the large steamships in the Transatlantic trade with the fuel now used. Petroleum requires none, as automatic feeders are employed.

3. The difference in weight of coal and petroleum allows the ship to carry about eight times the quantity of fuel.

4. By constructing ships with a view of burning petroleum, with tanks admitting water to supply the place of oil as fast as consumed, the ship is kept at a uniform draft, and she arrives in port drawing the same water as when leaving, no matter how long she is at sea. It allows war ships to remain at sea as long as desired, doing away with coaling stations at out-of-the-way and expensive points. The admission of water into the tanks prevents any possibility of the oil moving in the tanks in a seaway, insures a uniform pressure for the automatic feeders, and allows all the oil to be consumed.

5. Having an abundant supply of oil, it can be employed during storms to calm the seas.

6. With perfect combustion there can be no smoke.

7. The oil would be conveyed to the ship as water boats are at present, doing away with the great expense and coal dust of coaling ships.

A statement by the *Real Estate Record* shows the extent of new building in 25 cities of this country, which have an aggregate population of 7,500,000. The number erected during the year 1890 was 61,420, and the estimated value $226,-351,691. The cities vary quite widely in the extent of their quota. Boston and Duluth take the lead, with new buildings costing not far from $80 for each inhabitant. St. Paul comes next with an average cost of about $70, and then comes New York with $50. Next ranks Chicago with about $47 for each inhabitant, and then Minneapolis with about $45. Brooklyn, St. Louis, Washington, Worcester and Portland, Maine, appear to have expended about $30 each in new buildings for each inhabitant. Philadelphia about $25 for each inhabitant, and the smaller cities less.

West-bound joint through tariff proportionate rates on fifth-class freight from Pittsburgh were reduced 5 cents per 100 pounds February 15. This extends from all points East to East Clinton, Ill., and all points in Iowa. Shippers are also given the privilege of consigning goods in mixed carload lots, which in itself means a large saving to Eastern manufacturers. Heretofore a wire manufacturer or a nail manufacturer was compelled to ship a half carload of wire or of nails in a single car, but by the rules which will go into effect tomorrow he can ship half a carload of wire and half a carload of nails in the same car.

The Connellsville *Courier* says that Frank Hearne, C. D. Hubbard and other leading Wheeling, W. Va., ironmasters propose to build an independent coke railroad to the Connellsville region on account of the high freights charged by the Baltimore and Ohio Railroad Company.

U. S. Torpedo Cruiser No. 1.

TO ATTAIN SPEED OF 23 KNOTS.

(*With Supplementary Sheet of Engravings.*)

To-morrow bids will be received for the most ambitious vessel, as far as speed is concerned, yet attempted by the United States Navy Department. Should this boat meet all the requirements—and judging by what has been accomplished we have no doubt of its ultimate success—the new navy will possess the speediest boat of its size in the world. The design is wholly the work of the officers of the Department, to whom all due credit should be given: Geo. W. Melville, chief of Bureau of Steam Engineering; Philip Hichborn, acting chief of Bureau of Construction and Repair, and Chief Engineer N. P. Towne.

GENERAL DESCRIPTION.

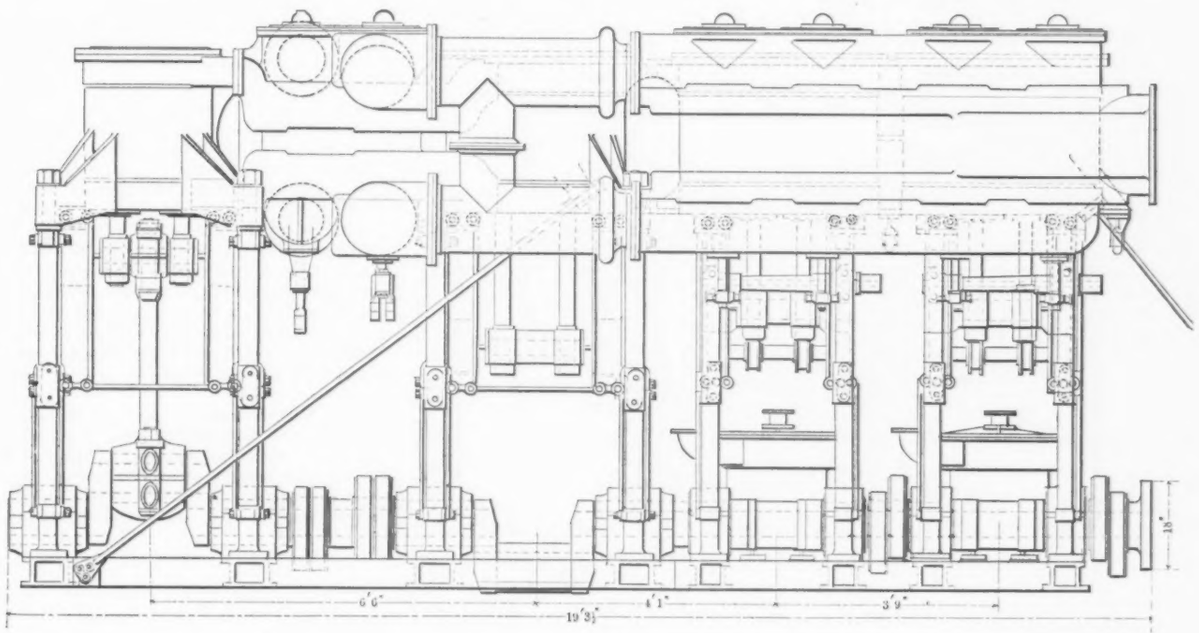
The boat will have the following general dimensions:

Length on deck	246.5 feet.
Length on load line	259 feet.
Beam	27.5 feet.
Normal draft forward	8 feet.
Normal draft aft	10 feet.
Displacement	750 tons.
Speed	23 knots.
Engines, indicated horse-power	3,000 each.

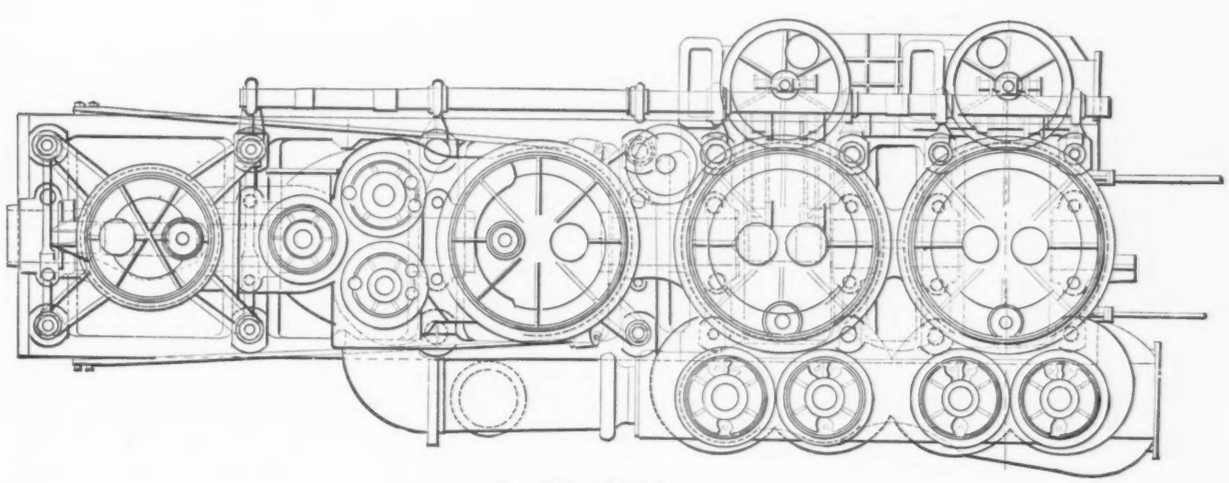
The boat will be propelled by twin screws, operated by direct-acting inverted triple-expansion four-cylinder engines. The drawings for the hull, engines and auxiliary machinery were made by the Department, but the style of the boilers is left to the discretion of the contractor, the stipulation being that they must consist of sectional coil or tubulous boilers of such type as may be approved by the Department. It will be noticed that the drawings represent the boiler spaces filled with Thorneycroft boilers, these being introduced merely to show the arrangement, and not as being at all binding on the contractor.

THE HULL.

The double bottom extends under the magazine and machinery spaces, and is framed on the longitudinal system, the transverse frames being 10 feet apart, and the continuous longitudinal girders 18 inches apart, which, taken with the bulkheads and protected deck, gives freedom from vibration due to high speed. The protective deck extends the full length of the ship and slopes down to 2 feet below water line at the sides. The slopes are to be ¾ inch thick, and the flat deck ½ inch thick. This covers the magazine and machinery space, electrical appliances, steering gear, and, in combination with the coal in the side bunkers, as shown on the accompanying plan view, protects the interior from the fire of guns. The rudder has an area of 80 square feet, and is actuated by direct-acting oscillating hydraulic cylinders capable of turning the ship in her own length. Her lines are carried out both forward and aft to give an easy entrance, thereby making less disturbance in passing through the water at the great speed required. The accommodations for the officers and crew are large, well-lighted and ventilated, and fully provided with all conveniences usually found in vessels of this type. There are to be two masts, rigged fore and aft. There will also be provided three powerful search lights and a complete electric plant. At nominal draft the vessel will carry 40 tons of coal. The bunker capacity is 190 tons, which will give 920 knots at full speed, or



Side Elevation of Engines.



Plan View of Engines.

UNITED STATES TORPEDO CRUISER No. 1.

40 hours' steaming, and at 10 knots she can steam 14 days, or 3360 knots. In contrast with some of the recent efforts abroad, she will have a flush deck fore and aft, doing away with the poop and forecastle and corresponding well, which will greatly add to her sea-going qualities. The battery will consist of three 4-inch breech-loading rifles, four 6-pounders, four 1-pounders, two gatlings.

GENERAL DESCRIPTION OF MACHINERY.

From the specifications accompanying the drawings we take the following points giving the principal features of the machinery called for. Our drawings were so selected as to convey a very good idea of the engines and their arrangement in the hull, together with the most important auxiliary machinery.

The propelling engines will be rights and lefts, placed in a common water-tight compartment. These engines will be of the vertical inverted-cylinder direct-acting triple-expansion type, each with a high-pressure cylinder 34½ x 23¾ inches, an intermediate-pressure cylinder 34½ inches, and two low-pressure cylinders each 38 inches in diameter, the stroke of all pistons being 18 inches. It is estimated that the collective indicated horse-power of the propelling and circulating-pump engines should be about 6000 when the main engines are making about 333 revolutions per minute. The high-pressure cylinder of each engine will be forward and the low-pressure cylinders aft. The main valves will be of the piston type for the high-pressure, intermediate-pressure and the low-pressure cylinders, all worked by Stephenson link motions, with double-bar links. There will be one piston valve for each high-pressure cylinder, two for each intermediate-pressure cylinder and two for each low-pressure cylinder, the low-pressure valves being worked from an interposed rock shaft. Each main piston will have two piston rods, with a crosshead working between guides. The framing of the engines will consist of forged-steel columns, trussed by forged-steel stays. The engine bed plates will be of cast steel, supported on mild-steel keelson plates built in the vessel. The crank shafts will be made in one section. All shafting will be hollow. The shafts, piston rods, connecting rods and working parts generally will be forged of mild open-hearth steel.

The condenser will be made entirely of composition and rolled brass, and will have a cooling surface of about 8400 square feet, measured on the outside of the tubes, the water passing through the tubes. There will be two vertical single acting air pumps for each engine, worked off the low-pressure crossheads. The circulating pumps will be of the centrifugal type, worked independently. The propellers will be right and left, of manganese bronze or approved equivalent metal.

There will be eight water-tube boilers, placed in two water-tight compartments, as shown. They will be constructed for a working pressure of 200 pounds per square inch.

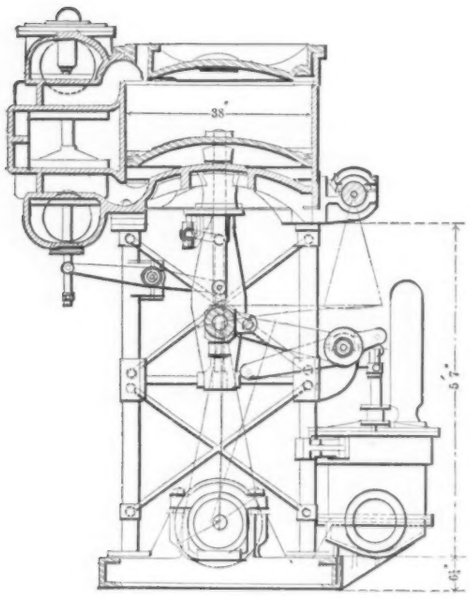
There will be a main and an auxiliary feed pump in each of the fire rooms and three auxiliary pumps in the engine room. The main feed pumps will connect with the main feed pipes, and each will have a capacity sufficient to supply twice the amount of water necessary for the boilers in the same compartment when steaming at full power under forced draft, and the auxiliary feed pumps will be same capacity and connect with the auxiliary feed pipes. There will be three smoke pipes, located as shown on the accompanying plan and side elevation.

The forced-draft system will consist of two blowers in each fire room, which will discharge into the fire rooms. Bulkheads and air locks will be fitted so as to make the fire rooms air tight. The weight of all the machinery is not to exceed 255 tons.

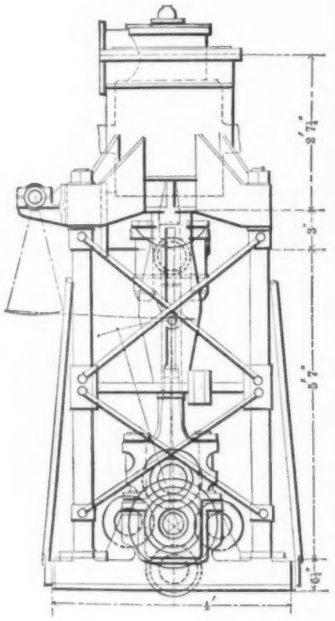
THE CYLINDERS.

They will consist of casings of best quality of cast iron as hard as can be properly worked, with working linings for the piston valves of the low-pressure cylinders. The cylinder casings, except the high pressure, will include the valve chests, steam ports and passages, the lower heads, and the various brackets to which the cylinder supports will be attached. The steam and exhaust ports will be smoothly cored to the dimensions shown in drawings, the walls of the passages being strongly stayed by ribs.

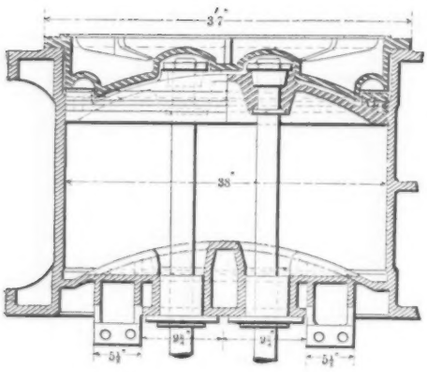
The flanges for securing the cylinders to each other will be so faced that when bolted together the centers of the high-pressure and intermediate-pressure cylinders will be 6 feet 6 inches apart, the centers of the intermediate and forward low-pressure cylinders will be 4 feet 1 inch apart, and the centers of the two low-



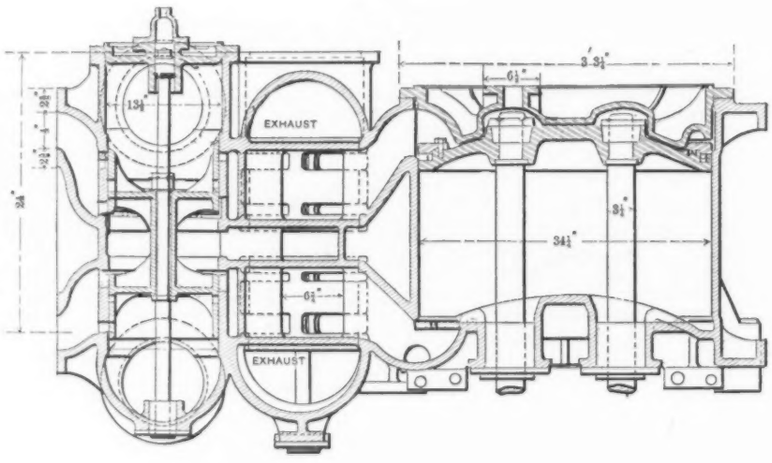
End Elevation and Section of One Low-Pressure Engine.



Elevation of One High-Pressure Engine.



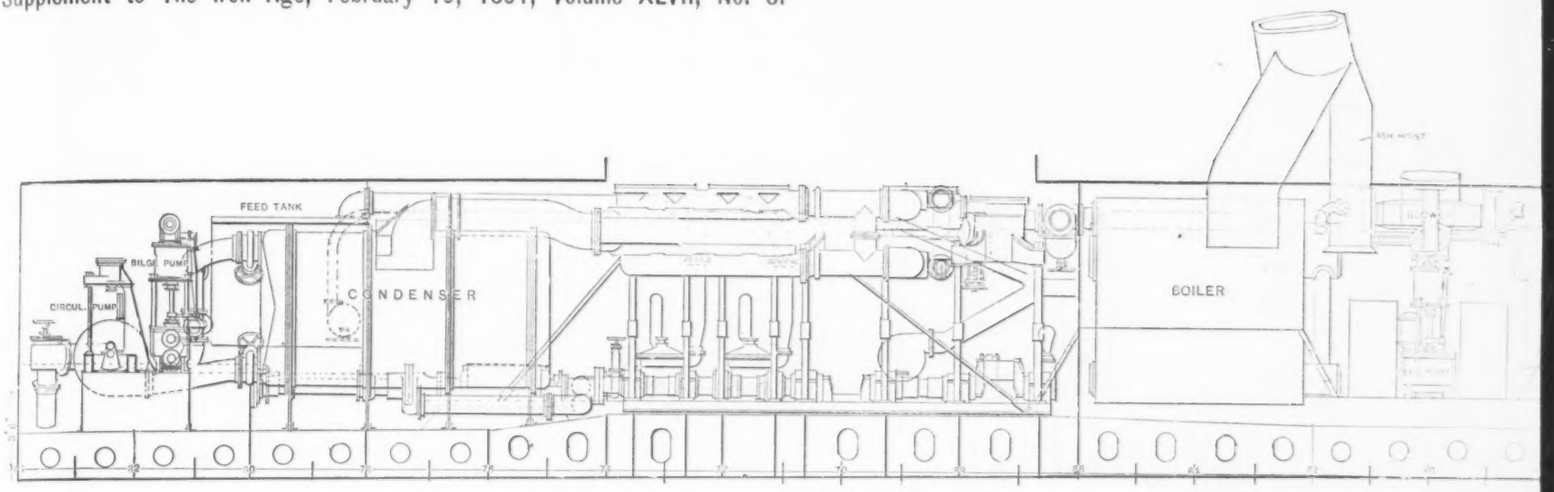
Vertical Longitudinal Section through Low-Pressure Cylinder.



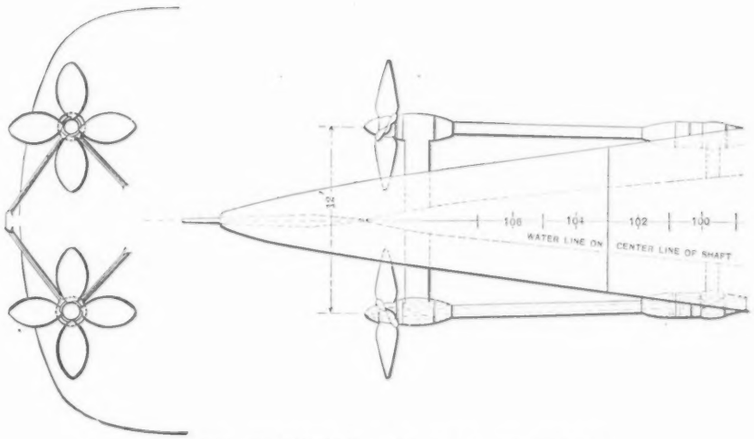
Vertical Longitudinal Section through Intermediate Cylinder.

UNITED STATES TORPEDO CRUISER No. 1.

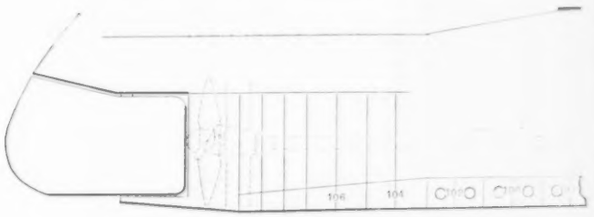
Supplement to The Iron Age, February 19, 1891, Volume XLVII, No. 8.



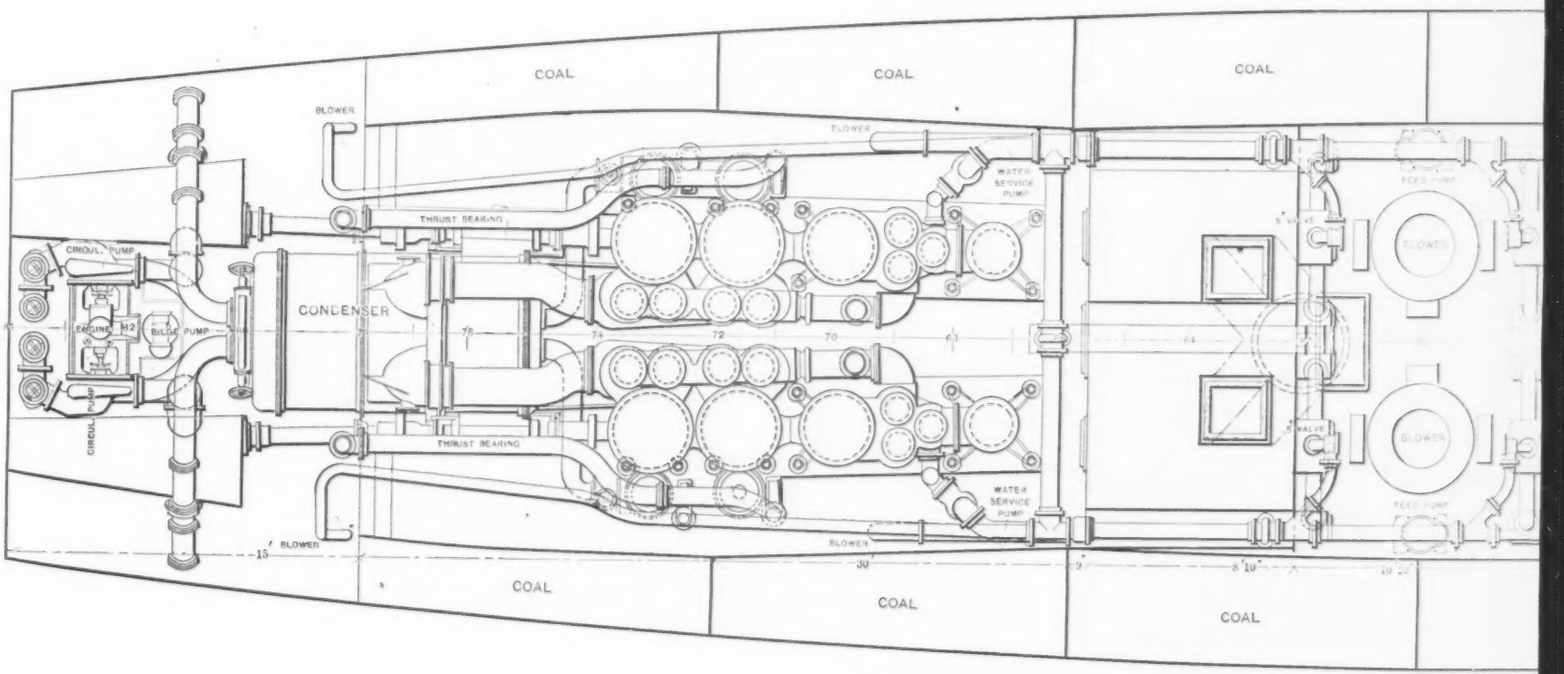
VERTICAL LONGITUDINAL SECTION THROUGH MACHINE



END ELEVATION AND PLAN OF STERN.

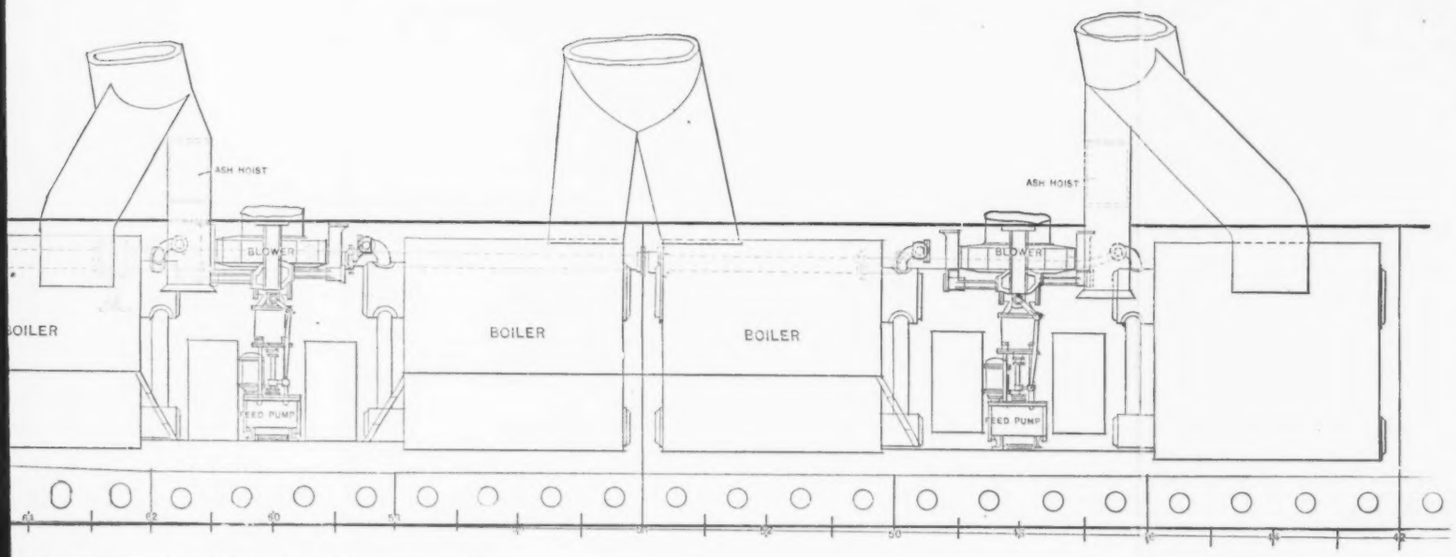


SIDE VIEW OF STERN.

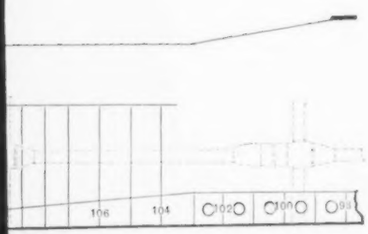


PLAN VIEW THROUGH MACHINERY SPACE

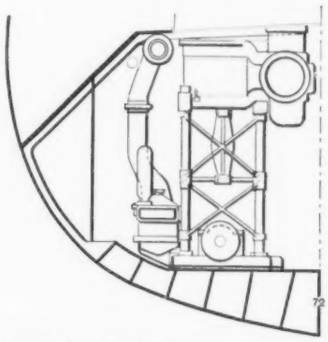
U. S. TORPEDO CRUISER No. 1.—SPEE



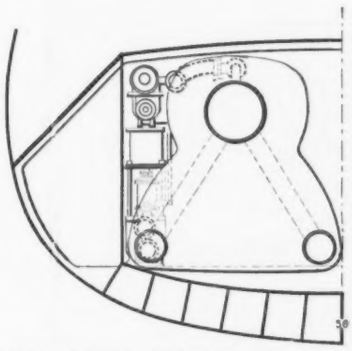
DINAL SECTION THROUGH MACHINERY SPACE.



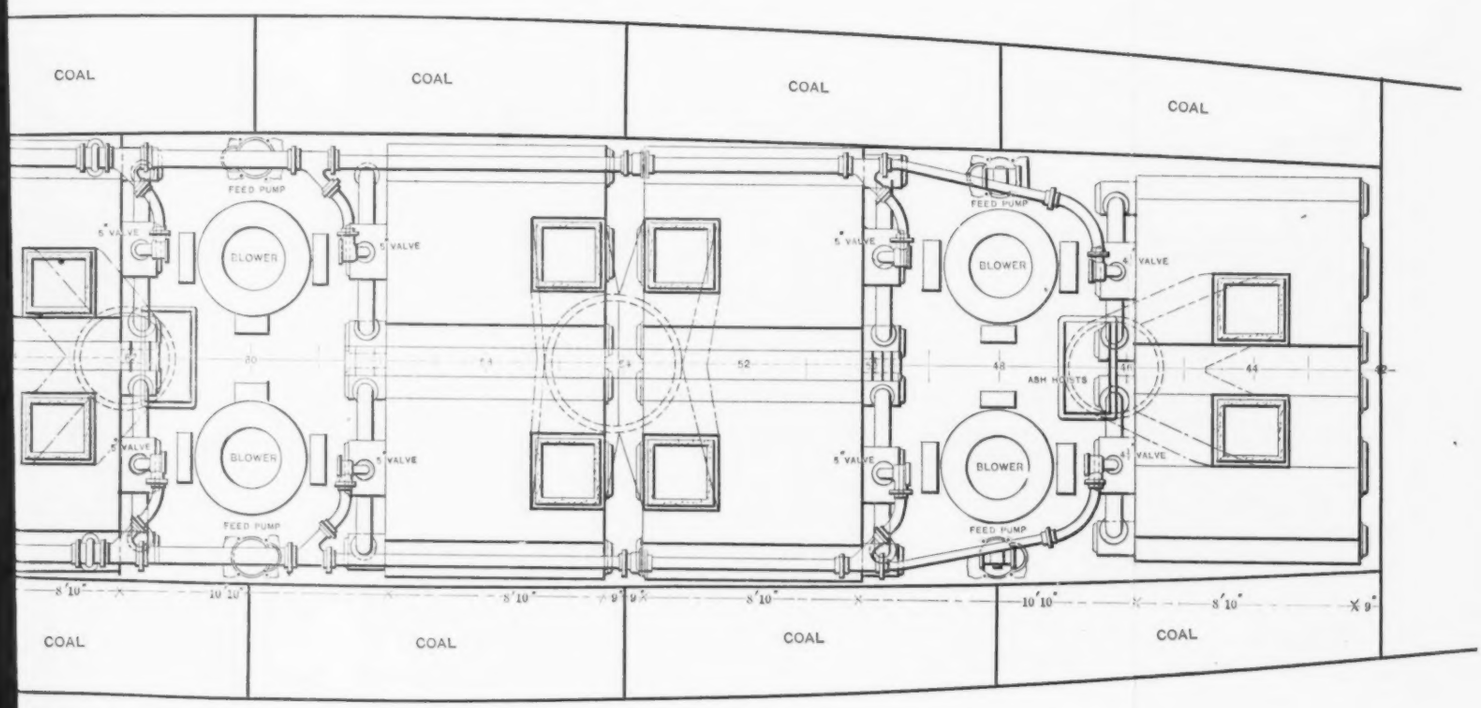
VIEW OF STERN.



HALF CROSS SECTION THROUGH ENGINES.



HALF CROSS SECTION THROUGH BOILERS.



EW THROUGH MACHINERY SPACE.

RUISER No. 1.—SPEED, 23 KNOTS.

pressure cylinders will be 3 feet 9 inches apart, all the cylinder axes being in one plane and parallel. The high-pressure and intermediate-pressure cylinder casings will be bolted together by body-bound forged-steel bolts. All the cylinders will be bored to their respective diameters when in a vertical position.

The heads of the high-pressure cylinder casings will be cast with a single wall and the barrel will be 1 inch thick. It will be bored to a diameter of 23⅜ inches. It will be counterbored at both ends, leaving the working bore 19¼ inches long.

Each of the intermediate-pressure cylinder casings will have two piston valves for the intermediate-pressure and one for the high-pressure cylinder. Each will be bored to a diameter of 34½ inches. The cylinders will be counterbored at both ends, leaving the working bore 19¼ inches long. Each will have faced flanges for bolting to the high-pressure and the low-pressure cylinders. The heads will be cast with a single wall and the barrels of the casings will be 1½ inches thick.

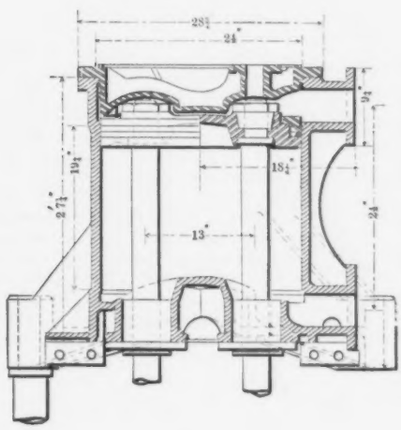
The heads of the low-pressure cylinder casings will be cast with a single wall, and

The intermediate and low pressure piston valves will be fitted with cushioning pistons and cylinders. The pistons will be 3½ inches in diameter; the amount of cushion in each cylinder will be adjustable by means of spring relief valves.

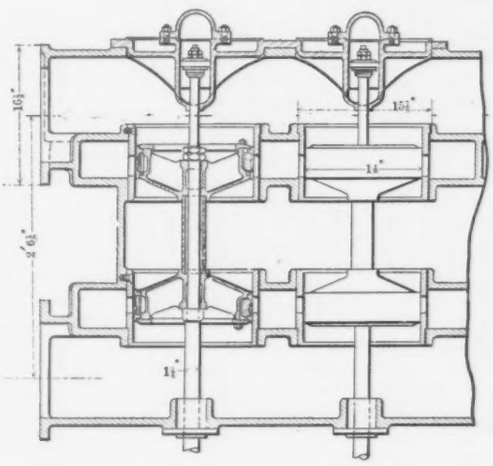
There will be a working lining at each end of each valve chest for the low-pressure piston valves. They will be of cast steel or close-grained cast iron and accurately bored to an internal diameter of 14 inches, leaving the walls ¾ inch thick. They will be forced into place, making all joints perfectly tight, and secured in an approved manner.

The piston valves will be of cast iron for the high and intermediate pressure, and of composition for the low-pressure. Each valve for the high pressure and intermediate-pressure cylinders will be made in one casting, and those for the low-pressure will be made in two parts, and each of these parts will consist of a hollow piston, with follower and wearing ring. The two end parts of each low-pressure valve will be separated when in position by a distance piece of such length as to make the steam and exhaust laps as required.

The piston rods will be of forged steel, 3¼ inches diameter for the high-pressure and intermediate-pressure and 2¾ inches diameter for the low-pressure cylinders. They will be turned to fit the pistons, with collars, and fitted each with a forged-steel nut at the piston end, secured by a split pin. The nut at the crosshead end will be secured by a set screw. Each piston rod will have, at its seating in the piston, a collar 4 inches diameter for the high pressure and intermediate pressure, and 3½ inches for the low pressure, ¾ inch thick, well filleted, and recessed in the piston. The piston rods will be kept from turning in the pistons and crossheads by stop pins.



Vertical Longitudinal Section through High-Pressure Cylinder.



Vertical Section through Low-Pressure Valves.

UNITED STATES TORPEDO CRUISER No. 1.

the barrels of the casings will be 1 inch thick. Each casing will consist of the two low-pressure cylinder casings and the valve chests for the four low-pressure piston valves. They will be faced and bored for the reception of the valve-chest linings. They will be bored to a diameter of 38 inches. They will be counterbored at both ends, leaving the working bore 19¼ inches long.

The cylinder covers will be of cast or forged steel, and, if cast, will be made with single walls ⅝ inch thick for the high and intermediate pressure, and ½ inch thick for the low pressure, well stiffened by ribs ⅜-inch thick on high pressure, ½ inch thick on the intermediate pressure and ⅝ inch thick on the low-pressure covers. They will be so formed as to leave as little clearance as practicable. The cover of the high-pressure cylinder will be secured to the cylinder casing by 20 1⅛-inch steel studs, the cover of the intermediate by 22 1⅛-inch steel studs and the low-pressure covers by 26 1⅛-inch steel studs.

The valve chests of each high-pressure cylinder will be fitted for one piston valve, each intermediate-pressure and each low-pressure cylinder for two piston valves.

Each intermediate and low pressure valve chest will have a 2-inch adjustable spring safety valve of approved pattern.

The valve stems will be of forged steel 1¾ inches in diameter at the stuffing boxes and reduced to 1½ inches where they pass through the valves. The lower end of each intermediate-pressure stem will be secured to its crosshead by a collar nut above and below the crossheads, the nuts and valve stems being kept from turning by clamps and set screws. The holes in crossheads of valve stems will be elliptical. The thread on each stem must be sufficiently long to allow a reasonable latitude of adjustment. The high-pressure valve stems will take hold directly of the link blocks, and the low-pressure valve stems with the links from the rock-shaft arms.

Each engine will have a 9-inch balanced stop and approved throttle valve placed in the same casing, the throttle valve being next the high-pressure cylinder casing and bolted to it. Each throttle valve will be worked by a lever at the working platform, and will have an index to show the position of the valve.

THE PISTONS.

These are to be made of cast or forged steel, and will be dished. The followers will be of cast or forged steel, secured in place by ⅞-inch stud bolts. Each piston will have two packing rings, each ⅝ inch wide and ¾ inch thick, of hard cast iron, cut obliquely, and tongued. The packing rings will be set out by steel springs of approved pattern, all set to an equal and proper tension. There will be sufficient clearance between the piston and cylinder to allow for difference of expansion. Each packing spring must be so secured in the piston as to be firmly held in place and easily inserted and removed. The springs must be of best spring steel, properly tempered.

CROSSHEADS.

These will be made of forged steel; the pins will be 6¾ inches diameter and 7¾ inches long for the high pressure and intermediate pressure and 5 inches long for the low pressure. Each crosshead will have wearing slippers working between guides secured to the frames. The gibs will be made of manganese bronze, the sliding surfaces being faced with white metal fitted in dovetailed recesses and hammered in place. The sliding surface for each high-pressure and intermediate-pressure guide will be 7 x 11½ inches, and for each low-pressure guide 5½ inches by 9½ inches.

THE CONNECTING RODS.

The connecting rods, with their caps and bolts, will be of forged steel, finished all over. They will be 45 inches long between centers. For the high pressure and intermediate pressure they will be turned 4 inches in diameter at small end and 5 inches at large end, the sides being faced off to a uniform thickness of 4 inches, and for the low pressure they will be 3½ and 4½ inches at the small and large ends respectively, and the sides will be faced off to a uniform thickness of 3½ inches. The crank-pin end of each connecting rod will be increased in thickness, faced on each side, fitted with white metal dove-

tailed and hammered in place, and accurately bored. Both ends will be provided with forged-steel caps and bolts with recessed nuts and set screws.

Each cylinder will be supported by four forged-steel columns, as shown in the drawings. The tops of the columns will be turned and faced to fit the lugs on the cylinders and secured by nuts, and the feet of the columns will be faced to fit the planed faces provided for them on the bed plates. The columns will be stiffened by steel rods, as shown.

The bed plates will consist each of three steel castings, flanged and bolted together.

The brasses for each bearing will be lined with approved white metal, fitted in dovetailed recesses and hammered in place. The caps for the high-pressure and intermediate-pressure engines will be secured by two stud bolts of forged steel 2½ inches in diameter, and those for the low-pressure engines will be 2¼ inches diameter. The part beyond the nuts will be fitted with a split pin. After the engines are secured in the vessel the brasses and caps will be bored out in place to perfect alignment, if required.

THE VALVE GEAR

will be of the Stephenson type, with double bar links. There will be one crosshead for the intermediate-pressure valve stems and a rock shaft for each two low-pressure valve stems. The valve gear will be so adjusted that the mean cut-off in full gear for both ends of each cylinder will be at 0.7 stroke.

The eccentrics will be of cast steel, accurately turned to an eccentricity of 2 1/16 inches. The straps will be of composition, fitted with white metal dovetailed and hammered in place, finished all over, made with flanges to fit the recesses of eccentrics and with lugs for the clamping bolts and eccentric rods. The two parts of each strap will be held together by two steel bolts with finished heads, lock nuts and split pins, and fitted with channeled brass distance pieces.

The eccentric rods will be of forged steel, finished all over. Each rod will have a T-head secured to its eccentric strap by two forged-steel stud bolts with nuts locked in place. The length between centers will be 42 inches.

Main links will be of double bar pattern, of forged steel, finished all over. They will all have the pins for eccentric rods forged on and finished to 11 inches between centers.

THE REVERSING GEAR

for each engine will consist of a steam cylinder fitted with floating levers and an approved locking device, and acting directly on an arm fixed on the reversing shaft. Each gear will be placed on the outboard side of its engine, between the intermediate-pressure and low-pressure cylinders, and secured to the bed plate. The steam piston rod will be secured to steel crosshead, working in suitable guides, and connecting with the arm on the reversing shaft. The valve will be worked by a system of differential levers, the primary motion being derived from the hand lever on the working platform, and the secondary motion from a pin on the reversing arm, all parts being so adjusted that the reversing engine shall follow the motion of the hand lever and be firmly held when stopped. Steam for the reversing engine will be taken from the auxiliary steam pipe.

SHAFTS.

All the crank, thrust and propeller shafts will be of forged steel. Each length will be forged solid in one piece, and will have a hole drilled axially through it from end to end. All shafts will be finished all over, and the crank shaft will be fitted for the circulation of water from the forward to the after end of the crank shaft.

The crank-shaft for each propelling engine will be in one section. Each will have a coupling disk, 2½ inches thick and 18 inches diameter, forged on the after end. The length of each shaft will be 19 feet 3½ inches over all. There will be a journal on each side of each crank 9½ inches in diameter and 16 inches long for the high pressure and intermediate pressure and 8½ inches for the low pressure, and the eccentric seatings will be 10¼ inches diameter and 8 inches long. The crank pins will be 10 inches diameter and 15 inches long for the high pressure and intermediate pressure and 8 inches long for the low pressure. The crank webs will each be 10½ inches wide and 4¾ inches thick for the high and intermediate pressure and 5¼ inches for the low pressure; the webs to be chamfered, as shown in drawing. There will be a hole 5 and 5½ inches in diameter bored axially through each shaft and one 6 inches diameter through each crank pin and crank web for the high and intermediate pressure engines and one 5 inches diameter for the low-pressure engines.

The thrust shafts will be 9 inches in diameter, with 4½-inch axial holes. Each shaft will have 13 thrust collars 1½ inches thick, with spaces of 1⅝ inches, the collars to be 12½ inches outside diameter. Each thrust shaft will be enlarged at the after end and counterbored to receive nut on propeller shaft. The axial hole at the forward end will be fitted with a water-tight screw plug.

The propeller shafts will each be in three sections, with a 5-inch axial hole in each section. The forward section of each shaft will be 9¼ inches diameter. The shafting in each stern tube will be cased with composition ⅝-inch thick, increased to ⅞-inch at the bearings, the casing extending on the middle section of propeller shafting to the after end of the stern tube guide sleeve. The after end of the forward section will have a coupling disk forged on, and the forward end will be fitted with a removable coupling disk. The after sections will be 9½ inches diameter, cased with composition ⅝ inch thick where they pass through the bracket bearings. The after end of the after section of the shafting will be tapered to fit the bore of the propeller box, and will be fitted for two feather keys. The axial hole in each section of the propeller shafting will be fitted at each end of the section, except the forward end of the forward section, with a water-tight screw plug. The axial hole in the after section of shafting will be tapered where the shaft passes through the propeller hub, so as not to reduce the thickness of metal around the hole. The after section of propeller shafting will have a coupling disk forged on the forward end, and the middle section will have a coupling disk forged on each end.

All journals or moving parts of iron or steel will run, unless otherwise specified, in composition boxes. These boxes will be lined with approved anti-friction metal where directed, fitted in dovetailed recesses and hammered in place.

THE THRUST BEARINGS

will be in two parts, of cast iron, with white metal linings. The lower part will be planed to fit the bed plate. The end and side walls of the pedestal will form an oil trough, from which there will lead an oil hole to each collar and each recess, the white metal being properly channeled for distribution of oil. Inside this trough, both forward and abaft the thrust collars, will be a cast-iron bearing and cap lined with white metal, fitted in dovetailed recesses and hammered in place, for taking the weight of the shaft. These bearings will be adjustable vertically by wedges with regulating screws. The oil trough will also be fitted with a cooling coil. There will be four adjusting screws, two at each end of the thrust bearing pedestals, for adjusting the bearing fore and aft.

SCREW PROPELLERS.

They will be of manganese bronze or approved equivalent metal. The starboard propeller will be right and the port one left handed. If made with adjustable blades, each blade will be firmly bolted to the boss by tap bolts of rolled manganese or Tobin bronze, secured by lock plates. The recesses for the bolt heads will be covered by composition plates secured by countersunk screws, and finished to form a smooth surface fair with the boss. The holes in the flanges of blades will be oblong, so as to allow adjustment of pitch.

CONDENSER, AIR PUMPS, ETC.

The main condenser will be cylindrical, 6 feet 6 inches internal diameter, made in three sections—the middle section being of cast brass ⅜ inch thick, and the end sections of sheet brass ¼ inch thick. There will be 4975 seamless drawn brass tubes in the condenser, ⅝ inch outside diameter, No. 20 B. W. G. in thickness. The tubes will be 10 feet 4 inches long between tube sheets, and will be spaced 1 1/16 inches between centers. The cooling surface of the condenser will be about 8400 square feet, measured on the outside of the tubes.

There will be two single acting vertical air pumps for each engine, worked off the low-pressure crossheads. Each air pump will have a piston working in a cylinder of 19 inches diameter. The pump cylinders will be cast separate, and each will be bolted to a casing containing its foot valves. There will be six foot valves, six valves in each piston and six delivery valves for each pump, all 5½ inches in diameter, made of approved metal.

The specifications call for all essential auxiliary machinery, describe the fittings and the kind of material wanted. As our object at the present time is to describe the engines and their arrangement, it is not necessary to mention in detail the appliances of minor importance.

San Dominican Negotiations.—Señor Manuel Gaddon, formerly minister to Washington from San Domingo, has been authorized to negotiate a reciprocal treaty with that country. Our trade with San Domingo has never been large, and our exports to that country showed a falling off for the fiscal year 1890. The total exports in that year were $950,217, as compared with $1,180,019 in 1889, $817,709 in 1888 and $1,032,865 in 1887. The principal articles of export were flour, which reached a value in 1890 of $149,260; iron and steel manufactures, $169,538; and provisions, $122,525. Our imports from San Domingo were $1,951,013 in 1890, against $1,454,261 in 1889. The largest item was brown sugar, which reached a value of $1,715,364 for 1890, against $1,142,844 for 1889.

The announcement made sometime since that a sheet mill and tin plate factory were contemplated at Joliet, Ill., is followed by the definite statement that a site has been selected and that works to cost $500,000 will be erected. The prime movers in the enterprise are Lewis Brothers, formerly sheet manufacturers in England. Chicago, Pittsburgh and Welsh capitalists are reported to be interested in the proposed company.

The salt manufacturers in Michigan, lately known as the Michigan Salt Association, have determined to reorganize under new conditions, so as to avoid ruinous competition.

National Association of Builders.

At the Fifth Annual Convention of the National Association of Buildess, held in New York last week, the Committee on Arbitration presented the following report :

The committee appointed at the last convention of the National Association of Builders to prepare a form of arbitration, offer to the delegates assembled at the Fifth Annual Convention the result of their deliberations.

The committee call attention to the fact that one of the fundamental points of the Declaration of the Principles of the National Association recites that "employers in the building trades should recognize that there are great opportunities for good in associations of workmen, and while opposing and condemning improper methods and action upon the part of such associations, they should still be ready to aid and assist them in all just and honorable purposes."

Your committee believe it to be possible and desirable for employers and their workmen to unite in establishing a method by which the interests of workmen and the interests of employers may each receive just consideration, and through which the relations of each to the other may be harmoniously adjusted.

They believe that to secure the establishment of such a method it is absolutely necessary that there be associations of employers and associations of workmen, to serve as representative bodies in the premises, in order that the action taken may comprehend, as fairly as possible, the collective interests of the individuals on both sides, and in order that the practices recommended may, through them, be more generally adopted.

They believe that no association desiring recognition as a representative body should, either in its form of organization or through its by-laws, rules or practices, attempt to independently or arbitrarily control or influence the action of others ; but, recognizing the rights of others, should adopt measures that will lead to joint consideration and joint action in all matters of mutual concern.

They believe that associations established on the principles above expressed should be heartily encouraged, all persons eligible thereto should be urged to join, and every legitimate effort made to convince them that it is their duty to unite with their fellows in all honorable methods for the establishment and maintenance of just and proper practices among themselves and in their relations to others.

In harmony with these views, and believing it is the manifest duty of the National Association to recommend to its filial bodies a definite and universally applicable method of arbitration in place of objectionable methods, or lack of method, heretofore existing, and which shall fully recognize the rights of both employers and workmen, your committee offer the following draft of a form of organization of a joint committee, and certain other action deemed essential, which they believe to be applicable for the use of any and all of the various branches of the building trade, and offer it as an honorable plan, which filial bodies may safely recommend to employers and workmen in the building trades, for the peaceful settlement of all matters of mutual concern.

Your committee recommend that all filial bodies be urged to present this simple plan to the various trades represented in their bodies, requesting their various special trades to organize, if not already organized, and then offer this plan to the organizations of workmen in their trades as the basis for a mutual agreement and understanding which shall prevent all further disputes.

FORM OF AGREEMENT TO SECURE THE ESTABLISHMENT OF ARBITRATION COMMITTEES, WITH PLAN OF ORGANIZATION OF THE SAME, FOR THE USE OF ASSOCIATIONS OF EMPLOYERS AND ASSOCIATIONS OF WORKMEN IN ALL BRANCHES OF THE BUILDING TRADE.

Agreement.

For the purpose of establishing a method of peacefully settling all questions of mutual concern,..... (Name of organization of employers) and.....(Name of organization of employees), severally and jointly agree that no such question shall be conclusively acted upon by either body independently, but shall be referred for settlement to a joint committee, which committee shall consist of an equal number of representatives from each association; *and also agree that all such questions shall be settled by our own trade, without intervention of any other trade whatsoever.*

The parties hereby agree to abide by the findings of this committee on all matters of mutual concern referred to it by either party. It is understood and agreed by both parties that in no event shall strikes and lockouts be permitted, but all differences shall be submitted to the joint committee, and work shall proceed without stoppage or embarrassment.

The parties hereto also agree that they will incorporate with their respective constitutions and by-laws such clauses as will make recognition of this joint agreement a part of the organic law of their respective associations. The joint committee above referred to is hereby created and established, and the following rules adopted for its guidance :

Organization of Joint Committee and Rules for Its Government.

1. This committee shall consist of not less than six members, equally divided between the associations represented, and an umpire, to be chosen by the committee at their annual meeting, and as the first item of their business after organization. This umpire must be neither a journeyman craftsman nor an employer of journeymen. He shall preside at meetings of the committee, when necessary.

2. The members of this committee shall be elected annually by their respective associations at their regular meetings for the election of officers.

3. The duty of this committee shall be to consider such matters of mutual interest and concern to the employers and the workmen as may be regularly referred to it by either of the parties to this agreement, transmitting its conclusions thereon to each association for its government.

4. A regular annual meeting of the committee shall be held during the month of January, at which meeting the special business shall be the establishment of "Working Rules" for the ensuing year, these rules to guide and govern employers and workmen, and to comprehend such particulars as rate of wages per hour, number of hours to be worked, payment for overtime, payment for Sunday work, government of apprentices and similar questions of joint concern.

5. Special meetings shall be held when either of the parties hereto desire to submit any question to the committee for settlement.

6. For the proper conduct of business a chairman shall be chosen at each meeting, but he shall preside only for the meeting at which he is chosen. The duty of the chairman shall be that usually incumbent on a presiding officer.

7. A clerk shall be chosen at the annual meeting to serve during the year. His duty shall be to call all regular meetings, and to call special meetings when officially requested so to do by either body party hereto. He shall keep true and accurate record of the meetings, transmit all findings to the associations interested, and attend to the usual duties of the office.

8. A majority vote shall decide all questions In case of the absence of any member, the president of the association by which he was appointed shall have the right to vote for him. The umpire shall have casting vote in case of tie.

Clauses to be Incorporated with By-Laws of Parties to Joint Agreement.

A. All members of this association do by virtue of their membership recognize and assent to the establishment of a Joint Committee of Arbitration (under a regular form of agreement and governing rules), by and between this body and the..... ..... for the peaceful settlement of all matters of mutual concern to the two bodies and the members thereof.

B. This organization shall elect at its annual meeting.....delegates to the said Joint Committee, of which the president of this association shall be one, officially notifying within three days thereafter the said .....of the said action and of the names of the delegates elected.

C. The duty of the delegates thus elected shall be to attend all meetings of the said Joint Committee, and they must be governed in this action by the rules jointly adopted by this association and the said.....

D. No amendments shall be made to these special clauses, A, B, C and D, of these by laws except by concurrent vote of this association with the said..... .....and only after six months' notice of proposal to so amend.

LEGAL ASPECT OF STRIKES AND BOYCOTTS.

At the same Convention John L. Wilkie of New York delivered an address on the "Legal Aspects of Strikes and Boycotts," which is as follows:

In submitting to your attention some of the legal propositions that courts and legislators have laid down as defining and governing the relations existing between those who are affected by strikes and boycotts, it is expedient at the outset, in addressing this convention of builders, to limit our subject to the building trades ; a vast field of the law, interesting and instructive in the highest degree, covering the peculiar relations that exist between such semi-public bodies as railroad and steamboat companies and other carriers, telegraph companies, and certain other lines of industry, and the community, have been entirely passed over in the preparation of this paper, except in so far as the principles applied in their cases have been applicable generally to others. And it would, further, be well to state that in this, as, more or less, in every paper which treats of a legal subject, much if not all the thought, as well as considerable of the language employed, will be the gathering from other minds and pens.

Considering that our subject, then, will be the legal aspect of strikes and boycotts in the building trades, a brief historical review of the relations that have existed between employers and employees will be helpful in enabling us better to understand the comparatively great development in recent years of what their advocates admit are "war measures."

Whether in this review it would repay us to go back to those shadowy times in the building trades to which Miss Amelia B. Edwards referred in her lectures last year on temples and tombs in ancient Egypt before the General Society is doubtful. Certain it is, however, that even then co-operation in labor "was recognized as beneficial to production, although a like co-operation among the laborers for the purpose of bettering their condition was observed only to be suppressed." In England this suppression was never wholy effectual, and occasional outbreaks among the laboring classes are noted all along the pages of its history. This suppression, about the fourteenth century, took the form of harsh and tyrannical statutes, which aimed to uphold the class distinctions then existing. Workingmen born so were always to remain so, and any attempt by them, especially if several joined in it, to better their condition was almost sure to bring the individuals under the ban of the law. From time to time, commencing almost with this century, and down even to the present day, this legislation has been liberalized, and with the gradual doing away of aristocratic caste feeling workingmen have been more and more placad on the same plane of equality before the law with all other professions or callings.

In this country we find very little trace of this class distinction among our laws; although a statute in Massachusetts prohibiting combinations among laborers was not repealed until some time after independence had been secured. The spirit of our institutions in this free country is to regard every one as equal before the law, and to interfere as little as possible with the rights of the individual; and these fundamental principles it is well for us to remember when we come to consider methods and acts, necessary maybe as "war measures" where conditions are different, but as utterly alien and foreign to our American life as are the individuals among us who urge and adopt them.

THE CIVIL ASPECT.

The most convenient mode of examining into our subject, it would seem, would be to regard first the civil aspect of boycots and strikes, and second the criminal aspect.

By the former, I mean those rights and duties which affect individuals in their relations with each other solely, and by the latter such violations of these rights or duties as affect the interest of the public and the welfare of the State, and in the adjustment of which the State is a party.

From the comparatively small number of reported cases in which suits have been brought to recover damages for, or to enjoin, actions which have periled or destroyed a man's property or his trade or business by labor difficulties, it would seem that this right of civil action was very little regarded or its results not looked upon as of practical utility. Noticing, too, the large sums which certain of the labor commissioners in the various States have noted as being collected and held as strike defense funds, and viewing the increasing tendency of labor interests, despite some recent set backs, to consolidate, this phase of the question has seemed to point to a surely developing field of legal inquiry in the future. To a lawyer this matter is one of immediate interest, because, as we have already noted in distinguishing the two phases of our question, the criminal law is based upon the idea that certain violations of individual rights and duties are of sufficiently grave importance to the public to call for the intervention of the State, and without a careful definition of these rights by the courts how can we look for wise criminal legislation ?

The ground upon which a civil action would lie for injury caused by a labor disturbance

has been variously suggested, but the most logical seems to be that a man's trade or business is as much his property and estate in the sense of the law as any other property or right that he may have, and that to arbitrarily attack this right is to deprive him of his property, for which the courts when called upon will lend him their protection. This was declared to be the law very early in England, and has come to us by way of inheritance, receiving the express sanction and approval of unnumbered judges, who have declared it one of the great principles of the common law. And just here it becomes necessary to state a definition of the term common law, which we shall have to use again, and we may for our purposes state it thus: That the common law consists of those principles originating from the intercourse of people in their business, in reference to conducting it, which, applied by them only in the special cases arising, gradually grow into rules of wider application, which finally reach a statement by judges or legislators. Thus in England in the course of centuries a great body of law came to be stated, and, on the independence of the United States, this whole body of law was adopted as part of the law of each of the States, except where it happened to be in conflict with some already enunciated contrary principles.

The principle which we have noted as stated by Lord C. J. Holt, that "he that hinders another in his trade or livelihood is liable for an action for so doing," being the law in the case, the question comes as to its application in specified instances.

So far as strikes are concerned these acts consist chiefly in the abandonment of their employment by working men, either because of a matter of wages, or of working hours, or of the adoption of shop rules which are offensive, or of the failure to follow the trades union rules in reference to the employment of none but union hands or union apprentices, or any of a great number of causes, and such an abandonment of employment where the employee is simply a day laborer and is not breaking any contract made with his employer gives the latter no right to action against him. Often the courts have said that every man may carry on his trade as he pleases, may do what he will with his own so long as he does nothing unlawful, and acts so as not to injure his neighbor, and this applies as well to discharges by the employer as to retirement from employment by the employee.

INTERFERENCE WITH THE RIGHTS OF EMPLOYERS.

The most serious aspect of strikes is the interference of the strikers with the rights of their employers and their attempts to prevent and obstruct the employment of workmen to take the vacated places. Of course where actual physical violence is used, the law fastens upon the guilty individuals a liability to its full extent; but the question becomes more difficult of answer where the means used are the intimidation of employers or prospective workmen by threats of bodily harm, or of annoyances, or by any method of intimidation that works upon the mind rather than upon the body, and really causes the non-striking workman to forego or to be discharged from his employment. It is obvious that in cases of this kind practical success can only be attained by organization; and to this can be attributed in large part the modern development of trades unions. That there were unjust and tyrannical employers, and that their men single handed were powerless to achieve any results in betterment of their condition, is undisputed. But having formed their unions, placing the members, so far as combination can effect that purpose, upon a footing of equality with employers, and having tasted of the power thus acquired, its use has been at times directed in the furtherance of the matter we have just been considering. Now, it is not in any way intended to animadvert here upon trades unions. In this era of combination their place and office among workmen seems assured, and their existence has been recognized as proper and lawful by courts and by statute. It is only in so far as unions have become the means of coercion and intimidation that we discuss them here.

The question briefly stated seems to be "Does a cause of action exist when the influence exerted upon either employer or employee amounts to coercion?" Now, this coercion may be and has been manifested in a great many ways; direct threats of injury, the circulation of hand bills, the gathering in groups and the denouncing of non-strikers; even, as an English judge has said, pickets by black looks sufficient to have a deterring effect upon the minds of ordinary persons; all these acts have been held by the courts to be unlawful and actionable. Men acting as private individuals, or as members of a union or guild, or as Knights of Labor, may go out on strike if they will, they may seek to persuade others from taking the places they have vacated, so long as their persuasion be unaccompanied by threats, but further than that they must not go. Allowed perfect freedom of speech and action themselves, they must grant to others the same rights, and the moment they seek to curtail these rights their action becomes unlawful, and the courts will hold them so accountable.

About ten years ago a new "weapon," so called in this "labor warfare," gave rise to the question "Is coercion, when the only act threatened is lawful, actionable?" and to give you only the results of this discussion, we would state that such coercion has been held not actionable. The reason of the rule is this, that the only safe course in laying down legal principles is to make them of universal application. That though the threat to do in a lawful way an act lawful in itself, or the actual doing of such an act, may result in injury, and may even be immoral, impolitic and hurtful to the industrial interests of the State, yet to hold such acts unlawful would make it impossible under the general principle for workmen, for instance, to refuse to work with a drunkard, or for an employers' guild to make it a rule not to employ individuals who were addicted to gambling or other immoral habits. The dangers of such a rule must be evident, and in a country where individual liberty is so greatly prized we may confidently look for slight infringements upon the rights of others in the way we have described.

THE BOYCOTT.

The subject that brought this matter so much into prominence was the boycott, so called, and as that word is still a developing term, meaning one thing in Ireland, where it originated, and different things differing from each other upon both the Atlantic and Pacific coasts of our own country, a brief glance at its origin and development—of its fall, too, we might also say—will not be out of the way. Most of you will remember something of the origin of the term, how that one Captain Boycott, a land agent, having rendered himself obnoxious by the energy he displayed in collecting his owner's rents, was placed under the ban, no one would harvest his crops, nor sell him goods, nor buy from him, nor, in fact, hold any intercourse whatever with him, and, further, whoever would do any of these things was placed under a similar ban. This treatment making it necessary for laborers to be imported from a great distance to perform the necessary duties upon the farm, and necessitating, too, in that initial boycott, as in almost every succeeding one, the intervention of the constabulary to prevent violence, was a great success in the embarrassment of its victim, and among labor agitators a pæan of joy went up that at last the weapon had been forged which would make capital bow a servile knee to labor. It is of interest to note that in a description of this "new discovery" Mr. Justin McCarthy spoke of it in his work entitled "England under Gladstone," as a species of excommunication, and whoever looks into the matter will be struck with the logical similarity between the two. Excommunination was applied to offenders from the very beginning of recorded history; used by the church in the middle ages, it was recognized by almost every code in Europe. It was the duty of the State to strip the excommunicate of his citizenship, and to declare him an outlaw, to be slain by any one; no one could give him food or shelter, and left to perish in wretchedness, he was denied the right of burial, and his body was left to rot in the air. This condition of things, which a moment's reflection will show you would be the necessary consequence of the boycott, a condition so shameful and degrading that it sneaked into oblivion long ago, regarded as of too low a nature for any modern man to use, was sought to be resuscitated in this last quarter of this nineteenth century, as a new weapon of labor. Having been dragged from its closet, we are obliged to examine its bearings according to legal principles. And it is to the honor of our jurisprudence that as a result of legal decisions the boycott is rapidly disappearing to the shade from whence it came, we trust never again to come to light.

The subject matter of the offense is the same in this case as in the illegal methods of strikers—namely, the interference with the property rights of others—and the reasoning of the law is precisely the same as that already considered in reference to coercion and intimidation. The exception that we noted, that coercion by threats of a lawful act was not actionable, applies as well here, but, as a practical question, this can never be of moment to Americans, for, without unlawful coercion, no man, unless a criminal and an outcast from society, can be so shut out from his ordinary trade or occupation by common consent as to be deprived of his means of livelihood. The courts have applied these principles to cover the following cases:

In Massachusetts in 1888, where strikers paraded up and down in front of their employer's shop, bearing banners notifying other workmen to keep away.

In Vermont in a strike in one of the granite quarries in 1887, where the quarry was posted as a "scab shop" and the non-striking employees were advertised as "scabs" in the strikers' journal.

In Connecticut, in the same year, where the strikers issued a circular as follows:

> A word to the wise is sufficient;
> Boycott the *Journal and Courier*.

In New York, New Jersey, Virginia, Pennsylvania and Illinois similar acts have been held illegal and as giving a right of action to the party injured.

Of course this rule applies equally as well to employers as employees, and combinations of the former to unlawfully coerce workingmen would be held just as illegal as these acts of the latter that we have noticed, and though the cases are few in which the court have had this question before them, yet the decisions are clear to that effect.

THE CIVIL REMEDY.

Having glanced at what the rights of employers and laborers are in reference to their trades, we come now to the question, What are the civil remedies given them for a violation? And first we would say an action for money damages; we have already suggested that this remedy has been infrequently invoked. It exists, however, and suits have been brought. In this State, as in some others, such an action brought for injury to property entitles the plaintiff to obtain an order for the arrest of the defendant, and every new illegal act giving a new cause of action, repeated arrests may prove deterrents to persistent wrongdoers.

Another and more effective remedy in some cases is to obtain an injunction against the doers of the illegal acts. The law is not yet settled sufficiently to enable one to say in just what cases an injunction will be granted. The mere fact that a crime is being committed or is threatened is not enough. Where the act, however, is unlawful, is continuous, injures the complainant's business, and is one for which, by reason of the defendant's being pecuniarily irresponsible, or for any other reason, the action for damages will not be a full, complete remedy, the better opinion seems to be that an injunction will be granted. It has been successfully invoked in Massachusetts against boycotters; in Chicago against a furniture makers' union, which picketed a factory and by personal violence and insult kept nonstrikers from working, and in several cases in England under the common law. It has been suggested in New York, but refused in one case outright, and in the case of Theo. Thomas against the Musical Union, where the facts were exceptional, the court held there was no ground shown for the exercise of such jurisdiction. In the United States Circuit Court for the Ohio district an injunction was granted against strikers, and the Court of Common Pleas of Cleveland did the same thing against strikers who had practically stopped a railroad.

We have given such extended consideration to this first division of our subject because upon it, in large measure, depends the second division, viz.: the Criminal Aspect.

THE CRIMINAL ASPECT.

We have seen that the law regards certain interferences with a man's business as actionable injuries for which he may sue and recover damages, and we are now to consider briefly at what point the law says that such acts are so grave and menacing to the welfare of the State that they are not only actionable injuries to individuals, but crimes against the people, for which an indictment will lie. Aside from actual violence or destruction of property, which is rather incidental to than the thing itself, the legal heading under which crimes arising from strikes would fall is that of criminal conspiracy—a heading of almost boundless limit, and including every crime entered into or contemplated in concert.

In considering the application of this doctrine in the United States we find that the States are about equally divided in number into two classes—those governed by the common law of conspiracy and those in which the subject is regulated by statute, and of the latter, including Maine, Vermont, Pennsylvania, New Jersey, California, Illinois, Texas and others, the statute of New York seems to have been more or less the guide, and I quote from it here. It is contained in the Penal Code, Chapter 8, Section 168, and is as follows: "If two or more persons conspire together." . .

Page 5, "To prevent another from exercising a lawful trade or calling or doing any other lawful act by force, threats, intimidation, or by interfering or threatening to interfere with tools, implements or property belonging to or used by another, or with the use or employment thereof, or"

Page 6, "To commit any act injurious . . to trade or commerce . . . each of them is guilty of a misdemeanor."

And, too, Section 170, which holds "that the orderly and peaceable assembly or co-operation of persons employed in any calling, trade or handicraft for the purpose of obtaining an advance in wages or to maintain wages is not a conspiracy."

Under this and the similar statutes it has been held to be a conspiracy to attempt by threats and fines to compel others to join in a strike; to prevent an employer from taking into his employ other persons who were objectionable; to picket a factory for the purpose of deterring others from hiring; by intimidation or by the threat of numbers; to congregate around the door of an establishment and distribute printed circulars warning against the proprietor, in sufficient numbers to make the jury believe that the attitude was one of intimidation.

In what are popularly known as the Theiss case decided in New York in 1886, and the Landgraf Bakery case, in the same year, the boycott cases, Judge Barrett said: "A number of men may combine together to obtain larger wages for themselves in any employment. They may stop working . . . they may do their utmost by speech, writing and in every other lawful way to persuade others not to fill their places. But the very moment that other men . . . find it to their interest to fill the vacant places they cannot be stopped by violence, threats or intimidation. As soon as any of these are attempted the combination becomes criminal;" and to a similar effect is the opinion of Judge Brown of the United States District Court in the case of the Old Dominion Steamship Company *vs.* McKenna.

A PECULIAR CASE.

In the case of the People *vs.* Walsh, known as the Hartt Conspiracy case, in which a conviction was upheld by the Court of Appeals in June, 1888, a foreman who had incurred the ill favor of the unions was not only driven out of one shop by the refusal of men to work under him, but getting employment in another, was driven out of that by the men there going on strike, because of his employment, and unable to obtain further work in this great city of New York, going to Baltimore, where, after working one day, on a notice sent from the union here to the union there he was again forced out of his job, and returning to this city, invoked the law to protect him from the deliberate purpose to impoverish and crush him. Now, here we have no attempt by the rich and powerful to crush the poor, no unjust law interfering with the rights of the citizen, but a large body of workingmen attempting to utterly ruin and destroy one of their own number, and why? Not because he had been arrogant and tyrannical, but because he had found one of the employees cheating on his work checks, and had discharged him.

Not only does the act cover a conspiracy against an employer or by one workman against another, but it covers cases of conspiracy by employers against their men; and lockouts by agreement among employers, blacklisting of employees, or the combination of certain employers against one or more others, are within the view of the statute and are equally punishable.

The States which have no statutory enactments covering this question find the common law broad enough to amply protect their citizens. In the Vermont granite quarry case before referred to, in Massachusetts in 1886, in Connecticut in 1887, where a printer's union boycotted a paper and the printing office for employing non-union men, and in another late case in the same State, where one railroad company, in furtherance of an agreement, notified a second company to discharge an employee who was perfectly satisfactory to it, who had practically been blacklisted by the first; in an old case in Pennsylvania, in Virginia, where a boycott was instituted against Baughmann Bros., who were printers; in all these cases combinations such as we have noticed have been held to be criminal conspiracies at common law.

EXTORTION OF MONEY IN CONSPIRACY CASES.

There is one other incident of these conspiracies that we may notice, and that is the demand and often the collection of a fine or of a sum of money for the "expenses" of the strike or boycott, as the case may be. And this state of things has been more common than would be supposed. Within the last five years three instances of fines averaging $250, which have not only been demanded, but which have been paid by builders in this city, have come under my own observation. In a case in Massachusetts in 1867 the stone mason who had the contract for building the Catholic Cathedral in Boston, finding it impossible to get out all his work there, sent to New York to have some of it done. The journeyman's association fined him $500 for doing this, and threatened to strike all his work unless he paid it. He refused, and they did strike, until, finally, to complete his contracts, he paid it. Afterward he brought suit for damages for this extortion, and the court held: "We have no doubt that a conspiracy against a mechanic who is under the necessity of employing workmen in order to carry on his business, to obtain money from him which he is under no legal liability to pay, by inducing his workmen to leave him, and by deterring others from entering his employment, or by so threatening, is an illegal conspiracy . . . and the money so paid may be recovered back, and, in addition, if the parties succeed in injuring his business they are liable to pay all the injury thus done him."

And in the Theiss case, in this city, where the employer was fined $1000 for keeping his old employees and refusing to let the union tell him whom he should employ, the court said: "Let me say right here to the so-called walking delegate that hereafter he enters peoples' offices, be they mercantile, manufacturing or shipping, with the danger before him of the extreme penalty of the law, should he venture to extract one unlawful penny from his victims."

To sum up, we find as a result of the cases that workmen may combine in unions or societies for their advancement, for the purpose of raising wages or for fixing the hours they will work. Whenever they seek to secure these objects by threats, by violence or by intimidation, or where, as in the Hartt case, they seek to destroy and impoverish an individual, or when they seek to enforce their rules upon others, or to extort money, they commit criminal offenses for which they are subject to indictment.

There is one other matter incidental to this subject to which, at the request of one of your delegates, I will refer, and that is what defense a strike or boycott would be for failure to complete a building contract within the required time. This time clause in a contract rests so lightly upon the average builder that, as an architect said in my hearing, a builder would contract to build the great Pyramid in three months and rely on being excused for failure to perform because of changes in the plans or interference from other contractors. But if there should be a contract not open to this excuse for delay, in which the builder had agreed to perform within a fixed time, the law will hold him to strict performance within the time. If there are contingencies which may prevent performance, they must be provided against in the contract. Of course this rule would be modified if the prevailing labor disturbance reached such a magnitude as to amount to an insurrection; but the only safe course is to insert in the contract a stipulation excusing performance where the work is interrupted, and such a provision will be upheld and approved by the law.

STATISTICS OF STRIKES.

In this necessarily sketchy view of some of the relations existing between employers and workingmen, we have seen how the law regards certain acts, approving some, condemning others, but through all it must have been evident that the one great underlying principle declared as the policy of all the States was freedom—freedom of individuals, whether employers or employed, and freedom of trade from unreasonable obstruction. Because of this very freedom partly there have been, there will be in the future, industrial disturbances from these free agents working out the forces within them. Addressing, as I am, representatives of one of the greatest industries of this country, an industry which numbers among those dependent upon it a vast number of our citizens, to whom a strike, with its attendant loss of employment, means so much morally, I feel justified in closing this paper by urging upon you the necessity of a nearer and kindlier relation between employer and workingman for the solution of these questions. At present the latter's most trusted counsellor is more often than not some hired labor agitator whose advice is from the purely selfish standpoint of justifying his position by doing something, and that something a sure means of magnifying his own importance, no matter at what cost. Will such a one make use, for instance, of Labor Commissioner Wright's careful and trustworthy statistics showing the small percentage of successful strikes, the amount of loss of wages, and the moneys paid by labor for carrying on strikes, or will he state Mr. Wright's conclusion drawn from a study of strikes in Massachusetts for 50 years down to 1881, that "Strikes generally prove powerless to benefit the condition of the wage classes; that they lead to improvidence and are demoralizing in their effect upon the working man.

In the one month of May, 1890 about 250 strikes, involved 70,000 workmen; the actual loss to these men while on strike, was not made up by them from the actual results gained. I do not mean estimated gain for the balance of the year, based upon a temporary victory, but an actual gain for the following six months, and meanwhile other causes had started new complications.

These are but few of the truths of this relationship, and it is a good thing that so early in this convention you have visited Col. Auchmuty's trade schools, that you are to-day to visit the splendid library and school rooms of the General Society. These suggest means to a better understanding, such as should exist between an employer, whose business and what he has invested in it are worthless unless he can put it to use through employing workmen, and to the latter, whose plight is even more hapless unless he can get work. It is not by adding laws to the statute books, making this act and the other crimes; the law sufficiently and adequately, and no more, gives that protection now. It is not even by providing that outsiders shall be called in to make your bargains for you whether they be called Labor Commissioners or Commissioners of Arbitration. It is only by this more friendly footing being the fact with all its attendant consequences, that the legal aspects of strikes and boycotts will wane in public consideration.

Causes of Business Failures.

Bradstreet's has undertaken the onerous task of classifying the failures of 1890 according to the causes which led to disaster. The following table gives the results:

Business Failures in the United States Classified as to Causes.

Failures due to.	No.	Assets.	Liabilities.
Incompetence (natural)	2,005	$10,656,524	$21,545,326
Inexperience (only)	611	1,951,933	3,562,065
Lack of capital	4,052	23,601,043	45,818,994
Unwise credits	502	3,935,656	7,204,055
Speculation (outside)	604	8,917,424	19,616,481
Neglect of business	390	1,223,198	2,411,502
Personal extravagance	232	1,265,670	2,626,381
Fraudulent disposition	416	1,604,828	6,612,069
Disasters	1,358	28,627,846	42,650,814
Failures of others	237	9,745,954	18,730,648
Undue competition	246	1,235,549	2,194,551
Totals	10,673	$92,775,625	175,032,834

The "disasters" include flood, fire, crop failure and commercial crisis, while the "failures of others" are modified to include only those of "apparently solvent debtors."

The Illinois Steel Company.—The second annual meeting of the stockholders of the Illinois Steel Company was held on the 10th inst. at the offices of the company in Chicago. The directors and officers of last year were re-elected. They are: Directors, H. H. Porter, Nathaniel Thayer, Francis Bartlett, A. J. Forbes-Leith, Marshall Field, Jay C. Morse, Morgan Rotch, W. R. Stirling, H. S. Smith, Norman Williams, O. W. Potter. President, Jay C. Morse; first vice-president, W. R. Stirling; second vice-president, H. S. Smith; treasurer, J. C. Stirling; Secretary, B. W. Perkins. The president's report showed that the company had received during the year 1890 3,642,660 tons of raw material, of which 755,183 tons came by lake, and the balance, 2,887,477 tons, was carried in 150,745 cars. The company shipped out 928,769 tons of finished products in 58,676 cars. They paid in wages and salaries a total of $6,863,416.38, and employed on an average 9648 men per day during the year. The total purchases of stores and supplies amounted to $1,751,587.10. The principal products during the year were: Pig iron, 720,000 tons; spiegel, 36,000 tons; ingots, 733,000 tons; rails, 509,000 tons; billets, 80,000 tons; rods, 54,500 tons; beams, angles, merchant steel and iron, &c., 70,000 tons. When the new blast furnaces, at present under construction, are completed the company will own 19 in all.

A boom in oil and gas of unusual dimensions is being fostered in Western Virginia, where the hills are already dotted with derricks. The oil belt is supposed to extend from Pennsylvania through the whole length of that State.

THE WEEK.

A railroad line now being extended by the Norfolk and Western from the Pocohontas coal field in West Virginia to Ironton, on the Ohio River, promises a larger development of the industries at that prominent iron center.

In connection with the recent Southern trip of several heavy New York capitalists it is remarked that the Richmond Terminal aims primarily at a combination with the Missouri Pacific at Arkansas City, and through that to connect with the Union Pacific, making two transcontinental lines through the South, one line to start with the steamer route from New York to Savannah and thence over the Georgia Central and Georgia Pacific; the other line, starting from Washington, follows the East Tennessee, Virginia and Georgia system to Memphis. New and close traffic contracts will be made to cover through service between the Gould and the Terminal systems. A grand shaking up in Richmond Terminal affairs is supposed to be taking place.

Denver, Col., is suffering from severe business depression, affecting its building enterprises and trade movements.

The National Miners' Convention at Columbus, Ohio, adopted a resolution that all miners and mine workers in the United States demand the eight-hour work day on May 1 next, and that no miner remain in the mines longer than eight hours. The system of idle coal days is to be abolished.

The explosion of the boiler of the Quebec Worsted Mills, while being tested preparatory to resuming work, caused the death of at least 25 persons, including Arthur Tweddle, a skilled engineer, and several master mechanics. The loss of property is estimated at $100,000.

Kidder, Peabody & Co. have purchased, for a sum stated to be over $2,000,000, the seven steamships composing the fleet of the Boston and Philadelphia Steamship Company, who operate the line between Philadelphia, Boston, Providence and Fall River. Three of the vessels are of iron and were built recently in the Harlan & Hollingsworth yards at Wilmington. A new stock company to control and operate the line has been organized.

New York dentists are indignant because the census taker "degrades their profession to the level of a trade."

Some of the English papers announce that the Canadian Government offers pecuniary inducements to emigrants to settle on its lands in Manitoba, the Northwest territories or British Columbia. A bonus of $7.50 will be paid for the wife of every settler taking 160 acres and for each other member of his family over 12 years old who accompanies him, in addition to a payment of $15 to the head of the family.

A newspaper in the anthracite regions of Pennsylvania suggests that miners should be instructed in the manufacture of machines and tools used by them, so that when the collieries are shut down occasionally they need not suffer from lack of employment.

Coal and railway men at Chicago are discussing the expediency of establishing near that city a mammoth coal clearing house, to comprise extensive docks and warehouses, together with a system of tracks, for the joint use of the several companies concerned.

Shocking fatalities in the Pennsylvania coal mines within the last few weeks, caused by explosion and flood, illustrate the perils that attend the extraction of fuel from the earth. Statistics reported by the mine inspectors show that 118,977 people were employed in the anthracite mines in 1889, of whom 385 were killed while at work. In the bituminous regions the disparity is not so great, the workmen numbering 61,344, while the loss of life was 99. This shows a grand total of 180,321 workmen, 549 operators and companies and 484 persons killed while at work.

The published figures of the Agricultural Department show that for the last 20 years the increase in the number of farm animals in the United States has very nearly kept apace with the increase of population, and that if sheep are omitted from the calculation the number of cattle, horses, mules and swine has increased more rapidly than the growth of the population. For the past 10 years, the period covered by the census now in course of preparation, the increase in the aggregate number of farm animals has kept pace with the growth of population, despite the fact that the reported number of sheep has somewhat diminished.

A specimen new cable car of the Third avenue road is illuminated by the Pintsch Light, now being introduced by the Safety Car Heating and Lighting Company. The Pintsch gas system is likely soon to be generally adopted.

Japan's Minister of Marine has unfolded a plan which would double the naval strength of that country in the next six or seven years.

Cargoes of granite are being dropped at Point Judith, Conn., to form the enormous breakwater provided for by Congress. The work may be continued through many years.

The recently formed treaty with Brazil becomes more satisfactory now that it is definitely known that no treaty with Great Britian containing the "most favored nation" clause exists between the two countries. Therefore Brazil is free to enter upon a new commercial alliance with the United States, untrammeled by other international obligations. As between the United States and Venezuela the case is different.

A Western paper says the "Soo" tracks will be extended to connect the Marquette ore district with Gladstone, which will give the line a shipping port on Lake Michigan.

The Philadelphia commercial exchanges are vigorously co-operating for the concentration or consolidation of all in a general exchange. It is explained that with all the business interests of the city thus gathered it could be so arranged that each interest elect its own committee of management, make its own rules and regulations, settle its own disputes and elect its representatives to a general board, who would legislate and care for the general welfare.

The savings banks of the State of New York have total resources amounting to nearly $668,000,000, of which $258,000,000 is bonds and mortgage. The amount due depositors is $575,000,000.

The State of Washington and British Columbia were connected on February 14 by a railroad extending from the new city of Fairhaven, at the southern terminus, to Westminster, on the British boundary.

The mint recently established in Canton has become so popular that orders have come from Pekin to start another in the adjacent province at Foochow.

The past week has been prolific in rumors of railroad consolidations or alliances. It has been announced that Jay Gould and John H. Inman, as representatives of the Gould and Richmond Terminal systems, are at work upon a grand alliance, which will create an unbroken transcontinental line crossing the territory of the South, connecting with the Union Pacific in the West and reaching the seaboard at Norfolk or Newport News. In close connection with this movement has been the report that Gould and Inman were seeking an entrance to New York by means of the Baltimore and Ohio, for the purchase of the controlling interest of which it was said that they held an option. Another consolidation of equal magnitude contemplates alliance of the Southern Pacific to the Missouri Pacific and the Atchison companies under some plan which shall practically make them a united system.

The New York Biscuit Company, of which William H. Mosse is president, at their annual meeting in Chicago voted to issue $1,500,000 of bonds to provide funds for the completion of their factories in this city, Boston and Chicago. Their 14 plants during the last four months used 133,459 barrels of flour and made sales amounting to $2,846,422.

The plant necessary for the establishment of the Shipbuilding and Dry Dock Company's works at Newport News is nearly all on the spot, and two steamships for the Morgan Line have been commenced.

Steam-heating arrangements are in use on nearly all the railroads in Connecticut.

Cramp's yard at Philadelphia, in addition to the cruiser No. 2, to be named the New York, are building the battle ships No. 1 and No. 2, to be named respectively the Indiana and Massachusetts, and the cruiser No. 12, familiarly known as the Pirate, an unarmored three-screw ship. This is the vessel that is to have engines of 21,000 horse-power, or more than that of either the City of Paris or Teutonic. Her speed is to be 21 knots an hour.

The report is reiterated, on the authority of Calvin S. Brice and others who visited Chattanooga, that arrangements are making to establish steamship lines from Brunswick and Mobile to the South American republics.

The great Corliss engine at the New York Post Office was damaged by fire caused by an electric wire, and the Pennsylvania Railroad Depot foot of Cortlandt street narrowly escaped from fire similarly started.

A flood in Johnstown on Monday swept away all the bridges in the city but one, including that of the Cambria Iron Company, and the works were shut down.

Secretary Gibson of the Whisky Trust was indicted in Chicago and placed under heavy bonds, the evidence seeming to prove conclusively that he attempted to bribe the United States gauger to blow up and destroy, with all its inmates, the rival establishment of Shufeldt & Co.

On January 22 some 150 feet of the 600-foot dam crossing the Housatonic River at Birmingham, Conn., was carried away by an ice freshet, thus depriving the factories located on the west side of the river of water power. The Water Company are making a coffer dam in order to supply their patrons with water as soon as possible, but it will take all summer to repair damages permanently. In the meanwhile all the factories have supplied themselves with engines and boilers. The dam had stood over 20 years, and was considered secure. The damage was caused by heavy cakes of ice going over the dam, breaking the heavy timbers forming the apron and thus undermining the east end. The damage is estimated at $100,000.

The Iron Age

New York, Thursday, February 19, 1891

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Builders and Arbitration.

In contests with organized workmen the builders of our large cities, whether masters or journeymen, have been among the foremost in the fray, and after years of troublous experience it is possible they have learned something, in regard alike to employers and the employed. At the annual session of the National Builders' Association in this city, last week, they had protracted discussions in reference to general interests, but perhaps with no special design the relations existing between workmen came uppermost in the principal debates. Some little anxiety is felt with reference to the opening of the coming spring, as discontent among carpenters at Chicago is already manifest, and certain inadvertent expressions of a prominent labor leader in an investigation at Albany may have tended to bring State arbitration boards into disrepute. Upon this point it may be remarked, however, in passing, that the State Board of Massachusetts, by its recent declaration, has earned for itself an enviable reputation.

The public proceedings of the National Association of Builders in this city were characterized by a degree of dignity, prudence and discernment which commanded respect and must exert a salutary influence, in a wide measure, upon other kindred organizations of tradesmen. The body convened were estimated to represent nearly 6000 builders dispersed through 35 States. Nearly all of them had learned a trade and rose to their present position by virtue of the inherent qualities acquired as the result of their own diligence, probity and skill, intelligently directed. In remarking upon their public proceedings, as recorded during the past week, it is noticeable that they are urgent in advocating trade schools for the training of apprentices and all other measures calculated to elevate the workingman to positions that are at once lucrative and honorable. Among these latter it is pleasing to observe the prominence given to concilatory methods, such as are ordinarily reached by arbitration, as a substitute for strikes and boycotts. This is notably true of ironmen in the North of England. The summary of facts on these and corroborative subjects presented by John L. Wilkie of New York in an address entitled "Legal Aspects of Strikes and Boycotts," printed elsewhere in this issue, was distinguished for the soundness of its conclusions, which are of universal application and are deserving of thoughtful consideration.

The most effective of the proceedings of the Builders' Convention consisted in the adoption of the report on arbitration, which we also print in another column, offering a form of organization applicable to all branches of the building trade and to filial bodies, for the peaceful settlement of all matters of mutual concern between employers and workmen. A full discussion ensued before final action was taken, and there is reason to hope that substantial progress was made in the direction of a more cordial relationship hereafter between classes of men—employers and employed—whose interests are necessarily identical and interdependent.

The delegates, to the number of 500, left New York on a special train for Philadelphia, where they were received on the floor of the Builders' Exchange, and from thence visited the trade schools lately introduced on the Auchmuty plan, expressing much satisfaction with their progress and efficiency.

The Attorney-General of Great Britain, Sir Richard E. Webster, has got into trouble through an unguarded utterance in reference to pig iron warrants. The functionary in question was reported in the newspapers to have said: "More than one member of Parliament had told him that the spirit of gambling had become prevalent in many of the contracts made affecting articles of commerce, and it had been vouched for that there were more warrants for iron in existence than would represent three times the actual amount of that metal in the warehouses of the country." Connal & Co., Limited, the well-known firm of storekeepers, through their attorney, took Sir Richard E. Webster to task. The latter ultimately denied the accuracy of the report, asserting that his remarks were of the following tenor: "What I said was this, that I was informed that gambling transactions were largely indulged in in commercial matters; that in the session of 1890 I was consulted by a member of Parliament of great experience in the iron trade, who informed me that speculative and gambling contracts in iron for immediate delivery represented more than three times the actual amount of metal represented by *bona fide* warrants in existence, and that legitimate trade was seriously impeded." The whole trouble seems to have grown out of the fact that the Attorney-General confounded brokers' contract notes in the sale of pig iron with pig-iron warrants. It is asserted that within a reasonably recent period there have been contracts in existence representing three times as much Scotch iron as there were warrants in existence. It has never been claimed seriously by any one having knowledge of the English iron trade that there has been an over issue of warrants; that, in fact, warehouse receipts have been fraudulently issued. But it is becoming more and more the settled conviction in the English iron trade that warrants are used merely as "chips for gambling," and that the movements in warrants have no real relation to demand and supply, but are merely "the evidences of the strength and weakness of the bulls and the bears." Those who are engaged in legitimate business seem to be more and more impressed with the injury which this gambling is doing both to producers and consumers, but we fail to see that any practical steps have ever been taken to stop it, or that effective measures for suppressing the evil are possible.

Increased Boiler Pressure and Piston Speed for Marine Engines.

The present tendency toward increased boiler pressure and piston speed for marine engines, and the changes necessary in both boiler and engine in order to accomplish these objects, was considered by William Russell Cummins in a paper before the North East Coast Institution of Engineers and Shipbuilders. The author attributed the superiority of the triple-expansion engine over the compound to three causes: First, to increased working pressure, giving a greater total temperature range and allowing a greater ratio of expansion; second, to decrease of temperature range in each cylinder, thus causing less loss from cylinder condensation; and third, to increased piston speed. It was shown that there is an economy of 18 per cent. in the use of steam at 165 pounds pressure over steam at 115 pounds, and an economy of 16 per cent. in the use of steam at 265 pounds absolute pressure over steam at 165 pounds. Therefore, taking into consideration this gain of 16 per cent., and the admitted economy of high piston speed, it is deemed advisable to increase the boiler pressure to 250 pounds and also to increase the piston speed.

The important point is now to decide what type of engine will best suit these new conditions. The two-crank four-cylinder tandem and the two-crank three-cylinder tandem not being suitable for high speeds, the choice rests between the three-crank three-cylinder and the four-crank four-cylinder engine. The author claims that the four-cylinder has an advantage over the three-cylinder type in the matter of steam distribution, as the cut-off must be much earlier in the latter, and this early cut-off, besides making the engine unhandy, only allows of a small valve opening, thereby necessitating a large travel to get the requisite opening. Concerning the maximum speed at which the two types could be run, the three-cylinder engine would have a greater initial pressure to overcome the inertia of the moving parts, but the other engine, while having less initial pressure, would have less weight of moving parts. Another advantage claimed for the four-cylinder type is that it requires only two sets of valve gear. The conclusion is reached that this engine would best suit the new conditions.

The suggestion is made that the cylinder ratios should be designed so as to obtain equal initial loads in each cylinder, as by this method the greatest economy is ob-

tained in the weight of the reciprocating parts. The ratios determined for the triple are 1, 2.04, 6.54, and for the quadruple 1, 2.08, 4.46, 10.47. The stroke of the quadruple should be as long as possible, as the longer the stroke the greater the piston speed with normal revolutions. Another consideration is that long stroke, and consequently small diamerters of cylinders, will save space longitudinally, the increased hight not being of so much importance. The revolutions are limited to 100 per minute, as against 65 revolutions for the triple engine it is to replace. The writer concludes "that the economy of the three-crank triple-expansion over the two-crank compound has been mainly due to the increase of boiler pressure, and, to a small extent, to the increase of piston speed. That by increasing the boiler pressure to 250 pounds per square inch a steam economy of, say, 15 per cent. can be obtained over the present three-crank triple. That an increase of piston speed besides increasing the economy of steam, will also increase the weight economy, so that the piston speed should be increased up to the limits set down in the paper. That the best type of engine to use this higher pressure, and best adapted to run at a high speed, is the four-crank, four cylincar engine, with unjacketed cylinders and separate steam and exhaust valves."

A considerable departure from the usual practice is found in the boiler, intended to carry a pressure of 250 pounds. To obviate the difficulties which will arise with the furnaces and the flat sides of the combustion chambers, the writer proposes to put the furnaces and combustion chambers entirely outside of the boiler, which is a simple cylinder with tubes running from end to end. The boilers are placed back to back, with the combustion chambers between them. The furnaces and combustion chamber may be of cast or wrought iron, lined with fire brick. In order to keep down the grate surface, and thus economize space athwartships, it will be of advantage to use forced draft, and all the air on its way to the furnaces is made to pass over the top and sides of the combustion chamber, thus reducing to a minimum any loss from radiation. "The advantages of a boiler of this type are obvious. It is perfectly suitable for a high pressure. There will be no straining from unequal temperatures. The cost of manufacture will be considerably less than that of the present type of boiler. For the same heating surface the space occupied is less."

The comments in some of the English papers upon the enormous pig iron product of our country during the last year show that our British friends are a little nettled over the exhibit. The London *Economist* calls attention to the fact that the product of Great Britain in 1890 was only about 8,000,000 gross tons, because there was a practical suspension of work in certain districts during a part of the year. The result has been that English stocks have been reduced 450,000 tons. In America there was an accumulation of stock of 333,000 gross tons. In other words, England ought to have made 8,450,000 tons, while the United States had no business to make more than 8,879,000 tons, that being the product from which the accumulated stocks have been deducted. We regret, for the comfort of our English friends, to be forced to point out that even when the matter is looked upon in that light, the United States has a few hundred thousand tons to spare in its claim to position as the greatest iron producer of the world. We do not deny the possibility that, during the next five years, it may occasionally happen that Great Britain's total is larger than our own. But we do believe that long before we enter the next century our English friends will be so accustomed to second place that it will cease to excite comment on either side of the Atlantic.

The most striking fact in connection with the report of the production of steel rails just published by the American Iron and Steel Association is the evidently large quantity of lighter sections which has been taken during the year. It is not possible to give the exact figures at this writing, but some idea may be formed. As is well known, the Rail Association deals only with rails weighing 50 pounds and upward. Its reports of shipments embrace only that class. The report of the association showed the shipments of standard rails to be 1,388,166 gross tons. They did not include the make of the Allegheny Bessemer Mill, or of the Colorado Coal and Iron Company. It must be noted, too, that they dealt with shipments and not with production. Last year the latter was probably greater than the former, because quite a number of mills carried rails which they did not dare to ship until the money to pay for them was received. Accounting for these facts, it is probably a fair estimate to assume that the product of light rails was not less than 200,000 to 250,000 tons. An indication is furnished by the figures for Illinois, which practically covers the operations of the Illinois Steel Company. According to the annual report of the company the production of rails was 508,719 tons. Its shipments of standard rails were 413,850 gross tons.

Saturday last Carroll D. Wright, Commissioner of the Department of Labor, issued his report on the cost of production of iron and steel. We are officially informed that it was transmitted to Congress in manuscript, so that copies cannot be supplied until that body provides for the printing of an edition for distribution. Abstracts, evidently culled in haste, have been printed in the daily newspapers, some of which can hardly do justice to the report. It will be remembered that a preliminary report was published last year, which presented a mass of data, from which many conclusions were drawn, more or less erroneous, according to the sectional bias of the writers. Thoughtful students of the great questions involved in such an inquiry will not be content to base a discussion on the gleanings of Washington correspondents, who are hardly sufficiently familiar with them to allow of discriminating selection of data. It would certainly not be fair to Mr. Wright, whose work as a statistician commands universal respect. We shall reserve for the future a close analysis of the facts and subject the generalizations to close criticism.

Bilbao Ore Shipments.

Ferguson & Reid of Hope street, Glasgow, have issued the following statement, which shows the shipments and destination of iron ore from Bilbao during the past year. For the purpose of comparison the figures for the three preceding years are also given. Last year's exports, as we have already reported, were the largest on record, and reached the large total of 4,272,918 tons, as compared with 3,901,511 in the preceding year. Every country, without exception, is now importing more largely of Spanish hematite ore, but one-third of the entire total is taken by Cleveland, the next largest consumer being South Wales, which figures for 980,554 tons. The shipments for Scotland, mainly to the West Coast, amount to 566,391 tons, or an increase of 32,486 tons over 1889. The following is the statement referred to:

	1890.	1889.	1888.	1887.
Cleveland district:	Tons.	Tons.	Tons.	Tons.
Middlesboro'.	781,331	718,033	558,091	700,583
Stockton.....	71,595	94,373	95,363	82,046
Newcastle...	452,039	295,730	236,724	267,952
Sunderland..	43,850	66,865	85,244	61,240
W. Hartlepool.....	80,748	87,507	64,126	74,489
S. Shields.. .	1,339	.....	. ..	....
Totals.....	1,430,902	1,262,508	1,039,548	1,186,280
Wales:				
Newport.....	374,397	330,539	361,262	489,560
Cardiff .	486 147	491,256	476,641	459,583
Swansea.....	79,919	81,017	78,384	64,974
Sundry ports.	40,091	40,961	27,410	12,044
Tota's.....	980,554	943,773	943,697	1,056,161
Other English ports.	64,715	29,939	34,474	132,233
Scotland:				
Glasgow ....,	467,634	446,852	370,447	412,526
Bo'ness	48,165	48,795	54,768	48,007
Grangem'th..	2,435	3,199	10,544	8,017
Ayr, Troon & Ardrossan.	46,061	34,117	25.137	11,719
Bowling.....	2,096	942	2,720	724
Totals.....	566,391	535,905	463,616	480,993
Holland, for Germany....	647,980	640.261	644,235	707,394
Belgium.... ..	106,525	93,010	103,602	98,304
France	388,516	378,347	347,687	356,980
United States.	89,335	3,748	14,778	152,077
Grand total tons	4,272,918	3,901,511	3,631,593	4,193,696

The Wellman Iron and Steel Company have made and are still making extensive additions and improvements to their plant at Chester, Pa., which includes the rebuilding and remodeling of the two open-hearth furnaces. An entirely new mill is being built, which, when completed, will turn out plates as wide as, if not wider than, any mill in the country. New boilers and new engines are being put in, also new Wellman gas producers.

Andrew Carnegie sailed last week for Europe on the Teutonic. He returns in the same vessel.

Dr. R. W. Raymond, secretary of the American Institute of Mining Engineers, is expected to reach New York from his trip to Egypt on or about March 1.

The price of Lake Champlain furnace ore has been fixed at $2 per ton.

Our Foreign Trade.

The Bureau of Statistics has just issued its December report of imports and exports, which furnishes the data for the trade operations of the past year as compared with 1889. We take from it the figures likely to prove of some interest to the readers of *The Iron Age*, reviewing first those relating to imports of Iron and Steel. (See Table A.)

The imports of metals and their manufactures are gathered in Table B.

So far as the exports are concerned, those relating to iron and steel and cognate branches are tabulated in Table C.

In agricultural implements the year's business is covered by the following table:

	Twelve months ending December 31.	
	1890.	1889.
	Dollars.	Dollars.
Agricultural implements:		
Horse powers	8,479	14,010
Mowers and reapers and parts of	1,598,405	2,332,206
Plows and cultivators and parts of	713,911	943,228
All other and parts of	944,200	956,545
Total	3,264,995	4,246,079

Details are given of the destination of a number of leading articles, as follows:

Exports of Builders' Hardware and Saws and Tools.

	Values.	
	Twelve months ending December 31.	
	1890.	1889.
	Dollars.	Dollars.
Great Britain and Ireland	594,590	506,530
Germany	219,630	205,193
France	78,075	54,644
Other countries in Europe	153,392	130,457
British North America	394,427	267,695
Mexico	353,707	273,025
Central American States and British Honduras	142,049	128,452
West Indies	409,696	337,032
Argentine Republic	103,675	262,115
Brazil	194,691	178,838
Colombia	96,577	83,838
Other countries in South America	374,147	361,895
British Australasia	567,558	742,563
Other countries in Asia and Oceanica	116,446	85,242
Africa	123,338	154,895
Other countries	5,659	5,332
Total	3,907,637	3,813,746

Exports of Sewing Machines.

	1890.	1891.
	Dollars.	Dollars.
Great Britain and Ireland	999,061	966,285
Germany	509,280	322,990
France	105,147	119,394
Other countries in Europe	105,591	52,872
British North America	69,349	58,104
Mexico	222,529	178,806
Central American States and British Honduras	89,734	83,254
West Indies	136,294	82,122
Argentine Republic	30,147	110,589
Brazil	68,269	76,504
Colombia	107,263	86,537
Other countries in South America	159,731	146,722
British Australasia	246,033	243,311
Other countries in Asia and Oceanica	27,842	31,283
Africa	12,260	15,756
Other countries	1,113	1,010
Total	2,889,574	2,575,539

Table A.—Imports of Iron and Steel.

Iron and steel and manufactures of	Quantities. Twelve months ending Dec. 31.		Values. Twelve months ending Dec. 31.	
	1890.	1889.	1890.	1889.
	Tons 2240 pounds.		Dollars.	
Iron ore	1,246,830	853,572	2,854,118	1,852,392
Pig iron	134,953	148,779	3,694,839	2,863,137
Scrap iron and steel, fit only to be remanufactured	56,273	38,157	840,687	481,381
Bar iron, rolled or hammered	24,634	29,567	1,002,480	1,097,122
Bars, railway, of iron or steel, or in part of steel	204	6,217	5,035	163,339
Hoops or ties for baling purposes, barrel hoops, and hoop or band iron or steel, flared, splayed or punched	15,100	20,815	521,451	630,950
Hoop, band or scroll iron or steel	6,077	14,020	344,325	783,506
Ingots, blooms, slabs, billets and bars of steel, and steel in forms n.e.s.	28,636	72,808	1,578,286	1,989,837
Sheet, plate and taggers' iron or steel	9,041	7,632	649,449	444,456
Tin plates, terne plates and taggers' tin	328,007	331,311	23,674,214	21,726,767
Wire rods of iron or steel	55,427	73,758	2,343,150	2,409,259
Wire, and wire rope and strand, iron or steel	4,611	4,081	823,053	731,216
Manufactures of, n.e.s.:				
Anvils	1,390	1,399	167,691	179,254
Chains	583	621	101,571	77,618
Cutlery			2,381,726	2,362,530
Files, file blanks, rasps and floats			137,755	69,157
Fire arms			1,477,541	1,233,242
Machinery			2,590,348	2,829,633
Needles			*213,397	279,244
All other			1,902,254	1,676,144
Total, not including iron ore			44,452,252	42,027,742

* Since October 6, 1890, needles free of duty, $71,964.

Table B.—Imports of Metals.

	Quantities.		Value.	
	1890.	1889.	1890.	1889.
	Pounds.		Dollars.	
Pig tin	33,821,319	35,177,648	6,869,645	7,044,939
Brass, manufactures of			215,372	175,312
Fine copper contents of ore	6,017,041	5,190,252	394,864	391,277
Ingots, copper	663,676	128,998	57,014	11,041
Manufactures of copper			127,527	92,762
Lead and manufactures of			1,828,055	511,176
Bronze manufactures			907,153	813,605
All metal manufactures not specified			4,709,456	2,802,811
Spelter	2,112,626	1,908,480	107,017	81,078
Manufactures of spelter			53,469	66,312

Table C.—Exports of Iron and Steel.

Iron and steel and manufactures of	Twelve months ending December 31. Quantities.		Values.	
	1890.	1889.	1890.	1889.
	Tons 2240 lbs.	Tons 2240 lbs.	Dollars.	Dollars.
Pig iron	16,341	13,573	266,107	227,048
Band, hoop and scroll iron	6	63	545	993
Bar iron	1,068	778	97,317	52,341
Car wheels, No.	11,082	11,390	89,107	101,162
Castings, n.e.s.			931,288	432,621
Cutlery			147,199	105,245
Fire arms			825,551	909,229
Ingots, bars and rods of steel	154	39	19,423	5,642
Locks, hinges and other builders' hardware			2,077,005	1,838,615
Machinery			9,423,958	8,222,904
Nails and spikes:				
Cut	6,001	5,266	329,495	282,458
Wire, wrought, horseshoe and all other, including tacks	827	856	148,461	169,313
Plates and sheets:				
Of iron	513	330	47,623	28,547
Of steel	218	43	15,623	4,173
Printing presses and parts of			304,448	277,800
Railroad bars or rails:				
Of iron	104	1,082	4,738	20,340
Of steel	16,844	8,243	573,178	279,485
Saws and tools			1,830,642	1,975,151
Scales and balances			306,576	335,456
Sewing machines and parts of			2,889,574	2,575,539
Steam engines and parts of:				
Fire engines, No.	2	7	2,362	10,939
Locomotive engines, No.	137	187	1,037,404	1,586,746
Stationary engines, No.	282	269	275,255	205,407
Boilers and parts of engines			632,513	422,223
Stoves and ranges and parts of			231,828	274,739
Wire	10,405	8,645	851,198	679,969
All other manufactures of iron and steel			3,661,726	2,678,749
Total			27,000,134	23,712,814

Exports of Steam Engines and Parts of and Machinery not Elsewhere Specified.

	1889.	1890.
	Dollars.	Dollars.
Great Britain and Ireland	2,065,169	1,684,318
Germany	612,843	468,884
France	263,764	336,835
Other countries in Europe	480,031	365,159
British North America	756,073	824,390
Mexico	1,238,790	1,167,612
Central American States and British Honduras	469,847	266,390
West Indies	1,922,104	1,835,373
Argentine Republic	448,673	833,605
Brazil	483,433	504,764
Colombia	149,425	192,133
Other countries in South America	1,119,020	757,655
British Australasia	466,649	538,978
Other countries in Asia and Oceanica	626,751	490,809
Africa	265,126	180,918
Other countries	3,794	396
Total	11,371,492	10,448,219

The copper exports are dealt with in Table D.

Table D.—Exports of Copper.

	1890	1889	1890	1889
Ore, tons	24,159	45,836	$4,412,067	$8,236,206
Ingots, pounds	10,890,058	16,786,418	1,346,401	1,890,589
Sheets, pounds	81,841	26,992	18,978	6,163
All manufactures of			139,949	86,764

Destination.	Quantities.		Values.	
	Twelve months ending December 31.			
	1890.	1889.	1890.	1889.
	Tons.	Tons.	Dollars.	Dollars.
Ore:				
Great Britain and Ireland	22,715	44,254	4,201,791	8,030,201
Other countries in Europe	1,444	1,582	211,276	196,005
Total	24,159	45,836	4,413,067	8,236,206
	Pounds.	Pounds.		
Ingots, bars and old:				
Great Britain and Ireland	2,979,921	8,942,638	375,733	1,000,961
Germany	333,146	1,042,960	41,797	114,402
France	5,491,134	3,413,954	660,246	409,440
Other countries in Europe	1,936,135	3,232,619	248,143	348,432
Other countries	149,722	154,247	20,482	17,354
Total	10,890,058		1,346,401	1,890,589

An interesting compilation is made of the destination of the cars and carriages exported:

Carriage and horse cars and cars for steam railroads.	Values. Twelve months ending December 31.	
	1890.	1889.
	Dollars.	Dollars.
Great Britain and Ireland	548,570	389,314
Other countries in Europe	342,833	87,379
British North America	193,453	211,692
Mexico	693,689	509,770
Central American States and British Honduras	128,077	61,209
West Indies	711,874	384,815
Argentine Republic	1,241,564	986,799
Brazil	616,965	316,678
Colombia	13,159	27,397
Other countries in South America	222,888	339,900
British Australasia	336,269	389,282
Other countries in Asia and Oceanica	69,986	90,458
Africa	154,618	164,992
Other countries	2,911	2,922
Total	5,276,865	3,962,212

The exports of metal manufactures were as follows:

Exports of Metal Manufactures.

	1890.	1889.
Brass and manufactures of	$395,950	$366,738
Cocks and parts thereof	1,311,256	1,330,994
Lead and manufactures of	181,030	161,614
Plated ware	409,325	537,449
Tin and manufactures of	262,358	255,100
Zinc ore or oxide	195,113	73,802
Spelter and sheet zinc	126,291	44,049
Manufactures of spelter	23,587	35,732

The Armor Plate Tests.

The official report of the Board of Naval Officers on the competitive trial of armor plates has been announced through the just-published proceedings of the U. S. Naval Institute. Three plates were in competition, one of steel, one of nickel steel, manufactured by Schneider & Co., Le Creusot, and one compound plate, manufactured by Cammell & Co., Sheffield. After an exhaustive trial the board placed the three plates tested in the following order of merit: 1, nickel steel; 2, all steel; 3, compound. The compound plate was perforated by all projectiles, and its steel face was destroyed. Two of the shells passed completely through both plate and backing. Both steel plates kept out all projectiles, all-steel plate showing slightly greater resistance than the nickel-steel plate, but the former was badly cracked by the 8-inch shell, while the latter remained uncracked.

The projectiles were all Holzer 6-inch armor-piercing shell, brought up to the standard weight of 100 pounds by filling them with sand and fragments of iron. The fragments of iron weighed about 2 ounces each. The charge used was 44½ pounds for each round of brown prismatic powder, manufactured by Messrs. Dupont. The striking velocity was 2075 feet per second. The pointing was done by means of central cross hair sights in the axis of bore. The gun was fired by means of friction primer and long lanyard. The board made a careful inspection of the plates and their bolts and backing. The steel plate and nickel-steel plate were secured to the backing with 12 bolts 2.36 inches in diameter. The compound plate was secured to its backing by eight bolts 3.19 inches in diameter. The weight of the steel plate was 20,776 pounds; nickel steel 20,679 pounds, and compound about 20,992.

The Ships of the Lakes.—The Census Office has issued a bulletin in regard to the changes in floating equipments on the great lakes since 1886. In 1886 the net tonnage of vessels used for transportation on the great lakes was 684,632; in 1890 it had reached 826,360, an increase of 191,708 tons. The estimated value of these vessels in 1886 was $30,597,450, and in 1890 the aggregate valuation was $58,188,500, an increase compared with 1886 of $27,531,060. During the four years there has been a decrease of schooners and barges together of 14.91 per cent. in number, of 2.29 per cent. in tonnage and 13.33 per cent. in value. In 1886 there were but 21 propellers of over 1500 tons burden. In 1890 there were 110 propellers of this class, showing a percentage of increase in the number of these vessels of 423.81, a percentage of increase in the tonnage of 440.29 and a percentage of increase of value of 570.59 per cent. In 1886 there were but six steel vessels afloat on the lakes, with an aggregate tonnage of 6459 tons and an aggregate value of $694,000. There are now 68 steel vessels afloat on the lakes, with an aggregate tonnage of 99,457 tons, with an aggregate value of $11,964,000, an increase in number of vessels of 1033.33 per cent., in tonnage of 1439.82 per cent. and in valuation of 1623.99 per cent.

A Great Gun Completed.

One of the big mortars being built by the Builders' Iron Foundry at Providence, R. I., for the United States Government is finished and on exhibition at the foundry. The gun is a 12-inch breech-loading rifled mortar, 10 feet 9 inches long and about 5 feet in diameter at the largest part. Although called a mortar, it is as long as the old-fashioned guns.

After the mortar was cast it took about six days for it to cool. It was then taken to the machine shop and then turned on the outside and bored out. The gun as it then stood, without the steel rings, which were afterward put on, was obliged to stand a pressure of 30,000 pounds to the square inch. The mortar was then hooped with the steel rings. Two layers of these were put on. The first layer consisted of seven rings 2⅜ inches thick and 10 inches wide. The second layer consisted of six rings 2¾ inches thick. These rings make the mortar much stronger than would be the case had it been made of the same size of solid steel, without the rings. By these rings the pressure is made uniform throughout.

After the first boring the bore was measured by a star gauge, which measures as fine as 0.005 inch. After the rings were shrunk on the final boring was done and the bore rifled. A latitude of 0,003 inch is allowed. The breech is threaded, each alternate sixth of the threads being cut away. The breech block is made to fit into the breech and has alternate sixths of threads. The threads of the breech block slide into the smooth sixths of the block, when it is to be fired and then turned a sixth of the way around, and is so fastened. The projectile is an oblong iron shell charged with a bursting charge of 30 pounds of powder. The projectile is propelled by a charge of 80 pounds of powder. The whole charge weighs 630 pounds. The mortar has a range of 6 miles and costs about $10,000. The remainder of the mortars are all in process of construction and will be made exactly like the one just finished. The guns will be used for coast-defense purposes.

Anticipating the possibility of a sweeping silver coinage law being enacted by Congress at its next session, a Boston paper proposes that the State of Massachusetts should set up for itself, independently, a gold standard to be adhered to in all business transactions, after the example of California during the war. The editor believes that the Middle States and Ohio and perhaps other States further West would do likewise, and thus form a "citadel of resistance."

MANUFACTURING.

Iron and Steel.

The plant of the Lewisburg Nail Works, at Lewisburg, Pa., was levied on by the sheriff on the 11th inst., to satisfy a judgment of $35,000. The property of the firm is advertised to be sold at sheriff's sale on the 23d inst.

Blast furnace No. 1, of the Troy Steel and Iron Company, on Breaker Island, Troy, N. Y., was charged and put in blast last week.

During the month of January some large shipments of nails were made by water from Wheeling, W. Va., to Southern points.

One of the blast furnaces of Shoenberger, Speer & Co., at Pittsburgh, has been banked down to allow some repairs to be made. As soon as they are completed the furnace will resume blast.

A reduction in wages, averaging 10 per cent., has been made at the Emma Furnace of the Union Rolling Mill Company, at Cleveland, Ohio.

In one day recently the steel plant of the Bellaire Nail Works, at Bellaire, Ohio, turned out 214 tons, while on the same day the blast furnace turned out 236 tons of Bessemer pig iron.

A double puddling furnace, invented by P. Barron and J. J Broderick, is being tried at the American Iron and Steel Works of Jones & Laughlin's, Limited, at Pittsburgh. It is claimed for it that a heat can be made in half the present time required and that there will be no difficulty in working hard iron.

Furnace "E" of Carnegie Brothers & Co., Limited. at Braddock, Pa., was blown out on the 11th inst., for relining and repairs. In addition to the above furnaces "A" and "D" are also idle and undergoing repairs.

The plant of the Windsor Locks Steel Company, at Windsor Locks, Conn., ran day and night during 1890, with the exception of about four weeks, during which period it ran single time, its output for the year being the largest in its history.

Nimick & Co., well-known brokers in pig iron at Pittsburgh, are negotiating for the purchase of the blast furnace of the Fairchance Furnace Company at Fairchance, Pa. The furnace is a small one, being 44 x 12 feet in size, and has a capacity of about 200 tons per week. If the sale is made it will include only the furnace proper and not the land surrounding it.

Rosena Furnace, at New Castle, Pa., operated under lease by the Oliver Iron and Steel Company of Pittsburgh, was blown out last week. It will not go in blast again until the coke strike is settled.

The new mill recently erected by Cartwright, McCurdy & Co., proprietors of the Enterprise Iron Works, at Youngstown, Ohio, was put in successful operation last week.

The Carbon Iron Company of Pittsburgh have recently made some experiments in the manufacture of steel by introducing an amount of aluminum into the charge in the furnace The experiments were on a very small scale, but the results obtained were highly satisfactory. The firm purpose to conduct similar experiments on a more extensive scale in the near future.

The Troy Steel and Iron Company have elected the following trustees: Henry H. Rogers, William Kemp, Erastus Corning, Benjamin Brewster, O. B. Jennings, Charles W. Tillinghast, Selden E. Marvin, Joel F. Freeman, C. E. Dudley Tibbits, E. Bleecker Banks; inspectors of election, Thomas Dickson, F. A. Ostrander. There were rumors that a 2½ per cent. dividend was to be declared, but this was denied.

P. L. Kimberly & Co. of Sharon, Pa., advise us that there is no 3ruth in the report that they intend to erect a blast furnace next spring adjacent to their Greenville rolling mill at Greenville, Pa. Keel Ridge Furnace of this firm at Sharon, Pa., went out of blast for an indefinite period on Thursday, the 31st ult.

The plant of the recently-organized Boston Iron and Steel Company at McKeesport, Pa., will soon be ready to commence operations. The product will be muck bar, which will be used by the National Tube Works Company of that place.

The puddlers at the Belmont Nail works, Wheeling, W. Va., have struck because the company refused to sign the Amalgamated scale. This the company have never done and refuse to do now.

The new plant of the Aschman Steel Casting Company at Sharon, Pa., has been completed, and was put in operation during the present week. The firm will manufacture high-grade open-hearth steel castings of every description and in size from 1 pound up to 15,000 pounds. They have already received a number of orders, with excellent prospects for the future. Agencies for the sale of the product of the firm have been established in New York, Philadelphia and Pittsburgh.

On Wednesday, the 11th inst., there was turned out at the plant of the Allegheny Bessemer Steel Company, at Duquesne, Pa., 516 tons of 4 x 4 inch billets.

R. Heckscher & Sons, for some years the lessees and operators of the Philadelphia and Reading Coal and Iron Company's blast furnaces at Swedeland, Montgomery County, Pa., have purchased that property, which embraced two tracts of land, one containing 16 and the other 45 acres. The Messrs. Heckscher are building a new furnace near the present stack, and have the foundations finished for a portion of the iron work and buildings. Its size will be 15½ x 80 feet.

A press dispatch from Cincinnati, Ohio, under date of February 12, reads as follows: "According to the report of Ernst Rehm, master commissioner, the Steubenville Furnace and Iron Company are insolvent. After their assets are exhausted the remaining debts will amount to $51,667.57. This necessitates an assessment of 38 per cent. against the stockholders, and the decree was entered."

The Andrews Brothers Company of Youngstown, Ohio, are adding a new battery of six steel boilers to their blast furnace equipment. When this improvement is completed the plant will have an abundance of steam, which was the only thing lacking to make it first-class in every particular. The new puddling furnaces recently added to the rolling mill have brought the total number up to 40, thus giving the company a large muck bar capacity.

The Ellis & Lessig Iron and Steel Company, at Pottstown, Pa., went into partial operation on Monday with 40 men in the puddling department. Eight puddling furnaces were started with 14 puddlers and a sufficient number of helpers. The nail factory also resumed. The men at work have accepted the reduction against which the strike was inaugurated.

In *The Iron Age* of February 12 we made the statement that the liabilities of the Juniata Rolling Mills, McLanahan, Smith & Co., Limited, Hollidaysburg, were $140,000 and the assets $10,000. We are informed by Amos H. Sheetz, Philadelphia, that the fact is that the liabilities are $38,000, while the quick assets are $28,000. The minority stockholders of the Rolling Mill Company also claim that if they obtain judgment credits against a claim of the Gap Iron Company they will or should pay in full. The application for a receiver was simply for the purpose of treating all creditors alike, and if possible to pay in full.

Work has been resumed at Norristown, Pa., on the incomplete plant of the Norristown Steel Company. The buildings were mostly under roof and contracts for machinery placed when the capital of the projectors failed. The citizens of the place recently subscribed $30,000, which it is expected will complete the work.

It is reported that one of the idle Alice furnaces of the Tennessee Coal, Iron and Railroad Company, at Birmingham, Ala., is preparing to blow in.

The employees of the Southern Iron Company, at Chattanooga, Tenn., have accepted a reduction in wages of 10 per cent.

Three new Whitwell fire-brick stoves are being erected at No. 6 furnace of the Thomas Iron Company, at Hokendauqua, Pa.

The Towanda Rolling Mill, owned and operated by Wm. H. Godcharles, at Towanda, Pa., was burned to the ground recently. The plant and contents were valued at about at $80,000, on which there was an insurance of $35,000.

The Scottdale (Pa.) rolling mill has resumed operations after an idleness of nearly seven weeks, during which time extensive repairs were made.

The old Monticello Furnace, at Monticello, Pa., which was built in 1859 and abandoned in 1876, has been sold to James O. Candfield of McKeesport.

Swede Furnace of R. Heckscher & Sons, at Swedeland, Pa., has just completed a year's blast, during which time 33,000 tons of pig iron were made. The furnace is still in excellent condition.

The Stowell Iron Company have been organized at Duluth, Minn., with a capital of $1,000,000.

An explosion which led to banking occurred at the Pulaski Furnace, Pulaski, Va., recently.

The final contract for the new rolling mill at Pulaski, Va., was signed a few days ago. By July the muck bar mill will be in operation. C. C. L. Brown of Chicago, is manager. This plant will manufacture structural and bar iron and cotton ties.

The rumor is current at Birmingham, Ala., that Smith M. Weed of New York has been offered the position of president of the Tennessee Coal, Iron and Railway Company, to succeed Thomas C. Platt.

The stockholders of the Roanoke Iron Company met a few days ago at Roanoke, Va., and elected a board of directors. Only two changes were made in the old board, M. W. Bryan and John Cooper succeeding James S. Simmons and S. B. Haupt.

The Newport Rolling and Muck Bar Mill of Newport, Ky., is to be removed to Salem, Va., and a company with a capital stock of $150,000 has been organized to operate the plant. The incorporators are: J. W. Momeldorf of Cincinnati, Ohio; J. J. Bright of Point Pleasant, Ohio, and others. A site for the new plant has been purchased, and work is to commence shortly.

Negotiations are pending at Queen City, Texas, looking to the purchase of the mineral property of the Queen City Iron Mining and Smelting Company, by a syndicate of Eastern capitalists. If the purchase is perfected, the new owners contemplate the erection of a 50-ton iron furnace immediately.

Several days ago the bondholders of the Anniston Pipe Works of Anniston, Ala., moved for the appointment of Walter Crafts, the superintendent of the Woodstock Iron Company, as receiver. The appointment was made and the receiver's bond fixed at $75,000.

Pipe works are being erected at Abingdon, Va., with a company in which Wylie Evans is said to be interested.

A rumor is current at Chattanooga, Tenn., to the effect that the Cambridge Roofing Company of Cambridge, Ohio, have purchased for $2000 a site in Chattanooga, and will erect a branch roofing factory, also a rolling mill.

At a meeting of the Board of Trade of the Buena Vista Company, at Buena Vista, Va., recently, final and positive action was taken regarding the establishment of a steel plant in that place. As soon as the weather will permit the work of excavating and construction will commence. The necessary capital has been obtained and the company have been incorporated.

A deed of assignment of the Virginia Iron and Nail Works was filed at Lynchburg, Va., several days ago. J. Peter Williams was appointed receiver. There are two liens on the property which take precedence of the assignment deed. One a mortgage for $100,000, held by Philadelphia parties from whom the property was purchased, and another for about $12,000. The first debt has been reduced to about $80,000, thus making the preferred liabilities about $92,000. The total liabilities will probably not exceed $125,000. It originally cost the company about $100,000 and since the purchase nearly $180,000 has been spent upon the works, exclusive of about $60,000 expended in the erection of the Nanny B Blast Furnace. This will represent a total worth of $340,000.

The iron mines of Enoch Ensley, at Russellville, Ala., the coal mines of the Horse Creek Coal and Coke Company of Walker County and 25,000 acres of mineral land in Jefferson and Walker counties have been purchased by the Lady Ensley Coal, Iron and Railway Company of Sheffield, Ala.

The stockholders of the Utica Pipe Foundry, Utica, N. Y., have voted to increase the capital stock from $75,000 to $120,000, the increase to be used as working capital.

Machinery.

H. K. Porter & Co., builders of light locomotives at Pittsburgh, have about ready to ship two locomotives of the Forney type for the use of the Government in the improvements being made in the Mussel Shoal Canal in Alabama.

A Bonnot of Louisville visited Middlesborough, Ky., with a view to securing a location here for the Bonnot Bros. Engine, Boiler and Shafting Company's works.

The Windsor Locks Machine Company of Windsor Locks, Conn., are manufacturing two of the largest Jordan engines ever built. The weight of each when completed will be 4 tons, and they will be of just double the capacity of any now in use. These engines are being built for the Hudson River Water Power and Paper Company at Mechanics' Falls, N. Y., where there is being built the largest paper mill in the country.

Work has begun at Boston onthe rebuilding of the Roberts Iron Works, recently destroyed by fire.

E. H. Brammal, at Camden, Maine, is making arrangements for extensive operations in the spring. As soon as the frost is out of the ground he will begin the erection of a building 46 x 52 feet, two stories high. He will have a brass and iron foundry on one side of the basement and machine shop on the

other, and a woodworking shop in the upper story. Here, in connection with his other buildings, he proposes to build wood, iron and steel yachts and stationary and marine engines.

A meeting of the stockholders of the Taylor Mfg. Company, manufacturers of steam engines, of Chambersburg, Pa., whose works are in the hands of the sheriff, was held on last week. A statement was read showing the condition of the company, which was as follows: Assets, $636,029.25; liabilities, $639,877.53. It is stated that $100,000 of the assets will have to be charged off, as possessing no value.

Orr & Sembower of Reading, Pa., manufacturers of engines and boilers, have recently removed the greater part of their machinery to Millmont, Annim Township, Pa., where the firm have recently erected new works. At present they are giving employment to about 175 hands, and have plenty of work on hand.

A meeting of the stockholders of the Ticonderoga Machine Company will be held February 27 in Ticonderoga, N. Y., for the purpose of increasing the capital stock from $30,000 to $125,000.

The Ryther Mfg. Company have recently moved to Watertown, N. Y., from Carthage, N. Y. At their annual election they chose officers as follows: President, C. P. Ryther; vice-president, Charles Woulf; superintendent, George P. Ryther; secretary and treasurer, A. E. York

A dividend of 2½ per cent. has been declared by the Watertown Steam Engine Company, in which their journeymen employees share on a basis of their rate of wages.

The loss in the molding sbop of Die & Co. of Glen's Falls, N. Y., February 7, by fire, was about $3000. It was insured.

Jones of Binghampton, Binghampton, N. Y., has bought out the entire scale business of the Rensselaer Mfg. Company of Lansingburg, N. Y. This is due to the increase in the valve business of the company and a consequent demand for more room. Water gates and valves will henceforth be manufactured at the Rensselaer Mfg. Company's works, and nothing else will be turned out by them. The business of the firm was established 37 years ago.

The Robinson-Rea Mfg. Company of Pittsburgh, builders of iron and steel works machinery, have recently received a large order for machinery of special design from Carnegie, Phipps & Co., Limited, of Pittsburgh, proprietors of the Homestead Steel Works, at Homestead, Pa. It is intended for use in the new addition being made at Homestead, and consists of a four-high train of rolls for the new slabbing mill and a 40-inch cogging train. This will be the first four-high train ever built in this country, and will be built from designs furnished by the Carnegie firm. The top and bottom rolls measure 32 inches in diameter, and the middle pair 28 inches in diameter. The two housings finished will each weigh 42 tons and are the largest housings ever built in this country. With the exceptional facilities possessed by the Robinson-Rea Mfg. Company for turning out heavy work they do not anticipate any trouble whatever in completing this contract, and when completed this firm will have the distinction of having turned out the heaviest castings ever attempted in Pittsburgh. Work on the contract has already been commenced, and it will be completed as soon as possible.

The Menasha Wood-Split Pulley Company of Menasha, Wis., have recently received orders from the following firms for hickory pulleys and hangers, cone pulleys, friction clutch pulleys and pickers: Appleton Machine Company, Appleton, Wis.; Campbell & Young, Fillmore, N. Y.; Sioux Automatic Refrigerator Company, Sioux City, Iowa; Gurney Refrigerator Company, Fond du Lac, Wis.; Spiceland Glass Company, Spiceland, Ind.; T. B. Field & Son, Antrim, Pa.; Appleton Machine Company, Appleton, Wis.; J. A. Barnes Machine Company, Oshkosh, Wis.; Fox Machine Company, Grand Rapids, Mich.; J. H. Luther & Son, Olean, N. Y.; F. O. Ambrose, Jefferson, Wis.; E. Keeler & Co., Williamsport, Pa.; Greene & Mallett, Troy, N. Y.; Rhinelander Iron Company, Rhinelander, Wis.; W. F. Cole Boiler Works, Ishpeming, Mich.; Racine Wagon and Car Company, Racine, Wis.

One of the foundry buildings of Dix & Co. at Glen's Falls, N. Y., has been burned. The loss is covered by insurance.

R. J. May has sold his foundry and machine shop at McKeesport, Pa., and has purchased another site on which he will erect a much larger plant to cost about $50,000.

Geo. T. McLoughlin & Co., machinists, of Boston, Mass., lost $8000 recently by a fire in their factory.

The Orange County Foundry at Middletown, N. Y., has been closed down and the appliances moved to Greenport, L. I. The foundry had led a checkered existence for 49 years.

William Caldwell has purchased half a block of land at Twenty-third and Arch streets, Philadelphia, on which he will erect a five-story machine shop.

The Bethlehem (Pa.) Foundry and Machine Company are engaged on a large casting for blast-furnace engines for Gordon, Strobel & Laureau.

C. H. Sewell & Co. have bought the foundry at Kenduskeag, Maine, and are going to manufacture a variety of stoves, plows, and farming implements. They will commence business about March 1.

The Fitchburg Steam Engine Company have decided not to move to Gardner.

The Simonds Rolling Mill Company, Fitchburg, Mass., are employing 112 men, and are at present between 5,000,000 and 6,000,000 balls behind their orders. Their recently increased facilities will, however, soon put them even with this deficiency.

The American Steam and Air Engine Company have been organized at Portland, Maine, for the purpose of manufacturing patent steam and air engines. The officers are: President, Granville Cash of Chelsea, Mass.; treasurer, H. M. Bullock of Franklin, Mass.

It is quite probable that the Connecticut Motor Company will leave Southington, Conn. If so, it is understood that they will go to New Britain, Conn.

W. H. Phillips of Taunton, Mass., will, it is reported, probably remove his foundry and machine shops to Middlesboro, Ky.

The Russell Electric Mfg. Company have been organized at Portland, Maine, for the purpose of manufacturing all kinds of machinery. The officers are: President, W. G. Chapman, Portland, Maine; treasurer, C. W. Russell, Providence, R. I.

The E. H. Horton & Son Chuck Company of Windsor Locks, Conn., have purchased the iron foundry and buildings of A. W. Converse & Co., which adjoin the Horton Works on the north. This purchase will give them a large water frontage and allow them to build a large mill, which they have contemplated doing for some time. This transfer of property will take place on March 1, and the Horton Company will run the foundry for the casting of their own shells, which at present is done elsewhere.

The Titus Tool Company of Brattleboro, Vt., will, it is reported, remove their tool works to Harriman, Tenn.

A half interest in the Linden Iron Foundry at Athens, Ga., has been purchased by Thomas Bailey, and new machinery will be added to the plant.

It is stated that negotiations have been successfully terminated looking to the removal of Cartwright, McCurdy & Co.'s cotton-tie factory to Middlesboro, Ky.

The new iron foundry being erected at Cordele, Ga., by the Cordele Machine Shops Company will soon be in active operation.

The Houston Foundry and Machine Company have been organized at Houston, Texas, with a capital stock of $25,000. The incorporators are F. Kavanaugh, Oscar Cecil, John Bowers and others. The company intend erecting a foundry building 50 x 80 feet, and an additional room for the machine shop, together with a cupola of 20 tons capacity.

Negotiations are pending between parties at Corsicana, Texas, and an Eastern syndicate for the establishment of a stove foundry and machine works in that city which are to cost $150,000.

A company is reported as forming at Little Rock, Ark., for the purpose of constructing and enlarging the foundry business of E. C. Wehrfritz. Among the additions in contemplation is a stove department.

J. H. Sprinkle and others at Corpus Christi, Texas, are forming a company for the purpose of establishing machine shops and iron foundry in that place.

The C. P. McWayne Plow and Machine Company of Wytheville, Va., will move to Graham, Va., and operate under the title of the Foundry and Machine Company, with a capital stock of $30,000.

Hardware.

On Tuesday, the 11th inst., a charter was granted to the H. M. Myers Company of Beaver Falls, Pa., with a capital stock of $150,000. The new concern succeeded the old firm of H. M. Myers & Co., manufacturers of shovels, spades and scoops. The directors are Henry M. Myers, Charles H. Myers, Henry Hill and William M. Hamilton, all of Beaver County, and Charles S. Hubbard of Allegheny County, Pa.

The Maryland Screw Company of Baltimore, Edw. Austin, president, have been in operation about one year and are reported to be doing an excellent business. The factory, which is entirely new, is equipped with new and improved machinery, invented by W. G. Dorman, who is one of the directors, and is otherwise actively connected with the business. The company are negotiating with parties in Canada to put in a plant there and expect to close the matter at an early date.

G. & H. Barnett of the Black Diamond File Works, Philadelphia, have nearly completed a much-needed addition to their works, which has been some months under way. Tke addition will increase their facilities about 25 per cent.

Charles E. Snow, Rochester, N. Y., manufacturer of Snow's patent galvanized mats, advises us that the trade in these goods for the past season was very satisfactory, but that indications point to an increased business for 1891. This will necessitate an enlargement of his facilities to meet the demands for mats.

Representatives of the Arcade File Works of Sing Sing, N. Y., and the Curtis Mfg. Company of Bridgeport, Conn., have recently visited Stamford, Conn., with the view of locating there.

The New York Knife Company, Walden, N. Y., have recently advanced wages in their pocket cutlery department 10 to 15 per cent., and are arranging to increase their force of operators in the near future. They advise us that the outlook for the pocket cutlery business is encouraging, and that their productions, both in style, finish and quality, will compare favorably with the best imported makes.

It is stated that efforts are being made at New Castle, Va., looking to the organization of a company for the establishment of edge-tool works. A. E Humphreys is interested.

F. E. Briggs, Deering Center, Maine, manufacturer of all grades of pieced tinware, began business ten years ago in a shop 20 feet square. The increase in his business has necessitated the enlargement of his plant five different times, and at the present time he advises us that he has over 10,000 square feet of floor room. His goods are sold without the aid of any salesman on the road, their consumption being largely in the Eastern States.

Grant McNeil, manufacturer of balanced charging barrows and steel wheelbarrows, Akron, Ohio, has been obliged to move into a new shop considerably larger than that into which he moved about a year since. We are advised that the demand for Mr. McNeil's goods has been very gratifying, making necessary the enlargement of his facilities referred to above.

We are advised that the Franklin Wrench Company, Natick, Mass., intend to remove their business to South Sudbury, Mass., where they will make one or two additions to their line of manufactures.

The Pullman Sash Balance Company, Rochester, N. Y., advise us that they have received from the Barney & Smith Mfg. Company, Dayton, Ohio, an order for 3808 sash balances. This is referred to as the largest order for sash balances to be delivered in one shipment ever placed in the United States.

O. Clifford Hall, formerly of Auburn, N. Y., for the past year superintendent of the Thomson-Houston Electric Welding Company, Lynn, Mass., and formerly for several years general superintendent of Sheldon & Co.'s Axle Works, at Wilkesbarre, Pa., has been appointed superintendent of the E. D. Clapp Mfg. Company of Auburn, and will enter upon his duties March 1. Mr. Hall's mechanical experience gained in the axle business, and familiarity with the large carriage trade of the country, will make his services valuable in his new connection. Mr. Clapp, president of the company, states that orders for carriage forgings are coming in freely, and that the works are running full time, with indications of a demand for all the goods the company can turn out the present season. A catalogue illustrating the productions of the company will be issued soon.

The Concord Axle Works, Penacook, N. H., have enlarged in capacity about 25 per cent., by addition of new machinery. The works are now running full and have large engagements for the coming season. The "Concord Express" steel axles are meeting an increasing demand, while the old "Original Concord" loose collar axles are holding their ground. The company is also having a good demand for the Concord stone polishing machine, which is used for polishing granite monumental work.

The Variety Mfg. Company, Chicago, have been incorporated to manufacture and sell hardware specialties and engage in a general manufacturing business. The capital stock is $10,000, and the incorporators are Edgar G. Barrett, Joseph Paden and Martin M. Gridley.

(*Continued on Page 357.*)

TRADE REPORT.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, February 18, 1891.

Pig Iron.—The feature of the week has been the decided stiffening in Southern Coke brands. Agents for Southern furnaces have been advised to withdraw quotations in several instances, while others are instructed to ask 50¢ ℔ ton more than their previous prices. The reason assigned is the heavy purchases by Ohio consumers, who are now feeling the restriction of the local supply. There has been no business here of a character to warrant an advance, but the influence of stronger markets elsewhere is having its effect. Soft Irons have been sold to a considerable extent, but the demand for strong Irons has been rather limited. Low-grade Iron could probably be sold in round lots, if it were available; but it seems to be very scarce. Local Coke Iron is stiffer, and some sellers ask an advance of 50¢. Ohio Softeners and Hocking Valley brands are dearer. The demand for Lake Superior Charcoal is very light, but sellers claim that there must be heavy buying in March, and are holding up prices as well as they can until the buyers begin to come in, when they expect the market to sustain itself. We quote:

Lake Superior Charcoal	$18.00 @ $18.50
Local Coke Foundry, No. 1	15.50 @ 16.00
Local Coke Foundry, No. 2	15.00 @ 15.50
Local Coke Foundry, No. 3	14.50 @ 15.00
Local Scotch	16.00 @ 16.50
American Scotch	18.50 @ .....
Southern Coke, No. 1	16.25 @ 16.75
Southern Coke, No. 2	15.50 @ 16.00
Southern Coke, No. 3	15.00 @ .....
Southern, No. 1, Soft	15.50 @ 15.75
Southern, No. 2, Soft	14.50 @ 14.75
Southern Gray Forge	14.50 @ .....
Southern Mottled	@ .....
Tennessee Charcoal, No 1	18.50 @ .....
Alabama Car Wheel	22.50 @ 23.50
Coke Bessemer	17.00 @ .....
Hocking Valley, No. 1	17.50 @ .....

Bar Iron.—Manufacturers are stiffer. The Coke strike and the reduced output of Pig Iron have caused the Mahoning Valley mills to make firm prices, and the local mills are also asserting that no concessions will be made. Orders are known to have been refused by manufacturers at prices easily conceded two weeks since. The demand at present is not large, as consumers' wants have been well covered for the time being, but some car orders could be obtained if the mills were willing to make concessions. Mill lots are now quoted at 1.70¢, Chicago, half extras, for local Iron, and 1.60¢, mill, for Valley Iron. Jobbers report a large trade from store at 1.90¢ for small lots and 1.85¢ for carloads.

Structural Iron.—Advance orders are coming in from builders, who are preparing to resume work as soon as the weather is favorable. Several large contracts will shortly be placed and more are coming forward.

Plates.—Trade is irregular, some dealers reporting an unsatisfactory condition of business, while others are having a large inquiry and have taken numerous mill orders. Prices now have a great deal to do with trade. Some of the mills are very anxious for work and name low figures for immediate specifications. Those who can do so are taking advantage of the situation to stock up. Store trade has been good for some time, bnt prices are a little lower. Nos. 10 to 14 Iron Sheets, 2.75¢ @ 2.80¢; Steel Sheets, 2.90¢ @ 3¢; Tank Iron, 2.55¢ @ 2.65¢; Tank Steel, 2.65¢ @ 2.75¢ ; Shell Iron or Steel, 3.25¢; Flange Steel, 3.50¢; Fire-Box Steel, 4.25¢ @ 5.5¢; Boiler Rivets, 4¢ @ 4.25¢.

Sheets—The demand for Black Sheets is the same as it has been, with buyers' preferences running to Sheet Steel at about 20¢ ℔ 100 above Iron. Galvanized Iron is very active and stock is now going out of warehouses faster than it is coming in. For a time it had been accumulating. Very low prices were made quite recently by one large manufacturer, who secured heavy orders from prominent buyers. After securing this business prices were marked up again, and the former quotation of 65 % off continues current for ordinary lots of Juniata.

Merchant Steel.—Very little new business is now coming up in the line of mill orders, but specifications are going in promptly on old contracts, so that the mills are fairly busy. Occasionally a good order for special shapes or special quality is booked, but the volume of business from that source is light. Prices are unchanged, as there is no inducement to cut We quote Tool Steel 6.75¢ @ 7¢, according to quality. Usual quotations are 2.40¢ @ 2.50¢ for Tire Steel, 2.40¢ @ 2.75¢ for Open Hearth Machinery, 2.50¢ @ 3¢ for Open-Hearth Spring, 2.20¢ @ 2.30¢ for Bessemer Machinery and 2.50¢ @ 2.75¢ for Toe Calk.

Track Supplies.—Small orders for Steel Rails have been booked, but there is a good amount of business in sight, most of which will be placed soon. The prospects are regarded as very encouraging for this branch of trade, and the South Chicago mill will be started up soon, probably this week. Quotations range from $31 to $32.50. Carload orders of standard Rails have been taken at $33. Fastenings are in somewhat better request, and at least one good order was placed last week. Iron Splice Bars are now quoted at 1.80¢ @ 1.90¢; Steel, 1.90¢ @ 2¢. Track Bolts with Hexagon Nuts are worth from 2.80¢ to 3¢, according to quality. Spikes sell at $2.15 for small lots down to $2 for large quantities from mill.

Old Rails and Wheels.—Old Iron rails are in some demand, but it is difficult to learn of any transactions. The market is supposed to be about $23 @ $23.25, but some sellers ask $23.50. Old Steel Rails are unchanged at $14.50 @ $18.50. Old Car Wheels have been sold to a limited extent at about $17 @ $17.25.

Scrap.—The demand is a little better for some grades, but dealers' opinions vary concerning prices. Some name higher rates and others lower. The average is about the same as last week. Dealers quote selling prices as follows, per net ton: No. 1 Railroad, $20; No. 1 Forge, $19; No. 1 Mill, $14; Fish Plates, $22; Axles, $25; Pipes and Flues $13; Horseshoes, $19.50; Cast Borings, $8; Wrought Turnings, $11.50; Axle Turnings, $13; Machinery Cast, $12.50; Stove Plates, $8.50; Mixed Steel, $11; Coil Steel, $15; Leaf Steel, $16, Tires, $18.

Metals.—Copper is in good demand at 15.25¢ for Lake and 12¢ for casting brands, carload lots. Spelter moves fairly at 5¢. Everett & Post report an excellent inquiry from all branches of the Lead trade, and while values may go lower, yet they look for a reaction and very much higher prices in early March. Sales here have been limited, and the market has ruled quiet at 4.15¢, 4.17½¢ and 4.20¢, the offerings being small, especially of Desilverized. At St. Louis the sales foot up some 700 tons Soft Missouri and Desilverized at 4.05¢ @ 4.10¢; at the close values may be quoted at 4¢ bid, 4.05¢ asked.

O. Clifford Hall, formerly with Sheldon & Co. in Auburn, N. Y., has been appointed superintendent of the Clapp Mfg. Company, to succeed Fred. Patten.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., February 17, 1891.

Pig Iron.—The market is in a somewhat improved condition, but there is still a good deal of irregularity. In the majority of cases standard brands are well sold up and firm, but in spots, owing to accumulations from one cause or another, the desire to unload has resulted in sales at very low prices. In is neither desirable nor possible to give the exact figures, but in endeavoring to report the market correctly it is necessary to state that sales have been made in large blocks at about 50¢ less than ordinary quoted rates. Standard qualities, however, are held with much firmness, and as a matter of fact, some holders are talking higher figures, while others are not quoting at all for the present. The position, therefore, is a little mixed, and although there is no question that there is a good undertone, it will require time to develop the true inwardness of things. Advices from the West are of a favorable character, and the local market is steady and improving; but every now and again large blocks of Iron from Virginia or Alabama are offered around at figures which, for the time being, almost paralyze the market. This fact is so constantly forced upon the trade that the most trifling improvement is immediately met with supplies from points at a distance, until it is felt that anything like a material advance in prices is almost out of the question, unless the movement is simultaneous at all points. Latest advices show that Pittsburgh is stiffening, but the liberal offerings from the South indicate that it will require a good deal of steady buying before a clean half-dollar advance can be established. Sales in this market have been on a moderate scale at about $14.50 @ $14.75 for Mill Irons, $16 @ $16.50 for No. 2 Foundry and $17.50 @ $18 for No. 1, with exceptional transactions, as already stated, at about 50¢ below the lowest quotations, and with a few choice brands at figures somewhat above the highest. Ordinary quoted rates for lots delivered in buyers' yards are about as follows:

Ohio Softeners, No. 1x	$19.00 @ $19.50
Ohio Softeners, No. 2x	18.00 @ 18.50
Standard Penna, No. 1x	17.50 @ 18.00
Standard Penna, No. 2x	16.50 @ 17.00
Medium Penna, No. 1x	17.25 @ 17.50
Medium Penna, No. 2x	16.00 @ 16.25
Virginia, No. 1x	16.75 @ 17.50
Virginia, No. 2x	15.75 @ 16.00
Standard Neutral All-Ore Forge	14.50 @ 15.00
Ordinary Forge Cinder mixed	13.50 @ 14.00
Charcoal Car-Wheel Iron	22.00 @ 26.00

Spiegeleisen.—The demand appears to have been pretty well supplied, so that prices are now almost nominal at $29, duty paid, for 20 %. Ferromanganese is unsettled, quotations varying from $61.50 to $62.50 for 80 %.

Steel Billets.—There is no general inquiry at present. Prices at Western mills are now equivalent to $28.60 @ $29, delivered in this vicinity, but consumers appear to be amply supplied for the present. A few orders for large Blooms have been placed at special rates, and additional sales of foreign Billets are reported at $31.50, which, being subject to a rebate of about $8 ℔ ton for export, brings the cost down very much below what domestic mills can meet.

Steel Rails.—In this department there is nothing of interest to report. Prices are steady at $30, at mills, and it is understood that several large blocks at that figure are virtually closed. The general demand is very apathetic, however, but there is no reason to suppose that prices will be lower, no matter how long the demand may be held in abeyance.

Muck Bars.—No recent transactions have been reported in this vicinity. Holders maintain $27 @ $27.50 as thei price for lots delivered in consumer

yards, but there is very little disposition to make bids for large lots, although it is probable that at $26.50 business might be done. Consumers' needs are evidently not urgent, as there is only an indifferent inquiry.

Bar Iron.—The market is very unsatisfactory. The demand is a trifle better, and some pretty large orders have been given out, with others still on the market, but there are no indications of prices stiffening. Mills are all anxious for business, and to get something ahead many of them are not very particular about prices, so long as they can get out whole, as they hope for something more profitable later on. Under pressure of this kind extremely low figures have been accepted (very close to 1.70¢), but as a rule 1.75¢ @ 1.80 is asked for 50-ton lots, and upward. Some mills quote 1.85¢ @ 1.90¢, but they make specialties, and are not influenced by consumers—such as car builders and others of that class. Car shops have taken in a great deal of work recently, so that mills are likely to be better employed than they have been for some time past. Car Axles, Channels and Angles are said to be decidedly higher than they were a short time ago, manufacturers of these specialties being comparatively full of orders.

Skelp Iron.—There is much demand, but prices are a trifle better, say 1.75¢ @ 1.80¢, delivered, with very few sellers at the inside figure, and some sales reported at a little over 1.80¢.

Plates.—The demand is fairly active, but the orders are mostly small, so that mills are not doing much beyond holding their own. One or two mills report several weeks' work ahead, but the majority are running close to the end of their order sheets all the time, hence the urgency to pick up anything that is going. Prices are not much better, and on the chance of a good-sized order it is not unlikely that some would be found to name lower rates, especially for immediate specifications. Ordinary quotations for lots delivered in consumers' yards are about as follows:

	Iron.	Steel.
Ship Plates	2.00 @ 2.10¢	2.10 @ 2.20¢
Tank	2.00 @ 2.10¢	2.10 @ 2.20¢
Bridge Plate	2.05 @ 2.15¢	2.15 @ 2.25¢
Shell	2.30 @ 2.40¢	2.40 @ 2.50¢
Flange	3.10 @ 3.20¢	2.60 @ 2.70¢
Fire-Box	3.75¢	3.75 @ 4.25¢

Structural Material.—There is only a fair amount of business coming forward, and some of the mills are beginning to feel anxious for work. Small and medium sized lots are frequently called for, but there is nothing large, so that the day-to-day demand is pretty much all that can be depended upon for the present. Prices are irregular, but in most cases are quoted about as follows for lots delivered in consumers' yards: Angles, 2.05¢ @ 2.10¢; Sheared Plates, 2.10¢ @ 2.15¢, and 10¢ @ 15¢ more for Steel, according to requirements. Tees, 2.5¢ @ 2.6¢; Beams and Channels, 3.1¢ for either Iron or Steel.

Sheet Iron.—There is very little demand at the moment, and mills are mostly working on stock, although at a price a good deal of business might be had. Quotations are usually given as follows for the best makes, but on large orders concessions can be had:

Best Refined, Nos. 14 to 20.....2.90¢ @ 3.00¢
Best Refined, Nos. 21 to 24.....3.10¢ @ 3.15¢
Best Refined, Nos. 25 to 26.....3.30¢ @ 3.40¢
Best Refined, No. 27.....3.50¢ @ 3 60¢
Best Refined, No. 28.....3.50¢ @ 3.60¢
Common, ¼¢ less than the above.
Best Soft Steel, Nos. 14 to 20.....3¼¢ @ 3½¢
Best Soft Steel, Nos. 21 to 24.....3½¢ @ 3⅝¢
Best Soft Steel, Nos. 25 to 26.....3⅝¢ @ 3¾¢
Best Soft Steel, Nos. 27 to 28..... @ 4 ¢
Best Bloom Sheets, ¼¢ extra over the above prices.
Best Bloom, Galvanized, discount..... @ 65 %
Common, discount..... @ 67½ %

Old Rails.—Prices are nominally about $22.50 @ $23 for seaboard lots, and from $23 to $24 at mills in the interior, but there is very little inquiry, and only a few trifling sales at about the figures named.

Scrap Iron.—There is a fair demand, and sales are usually made at figures about as follows: No. 1 Railroad Scrap, $21.50 @ $22, Philadelphia, or for deliveries at mills in the interior, $22 @ $23, according to distance and quality; $15 @ $16 for No. 2 Light; $15 @ $16 for best Machinery Scrap; $14 @ $14.50 for ordinary; $15 @ $16 for Wrought Turnings; $10.50 @ $11 for Cast Borings, and nominally $24 @ $26 for Old Fish Plates and $17 @ $18 for Old Car Wheels, and $18 @ $19 for Old Steel Rails.

Wrought-Iron Pipe.—A meeting of Pipe manufacturers is being held in Pittsburgh.

Announcement is made by Adam Tindell of the Frankford Steel Works that the Imperial Steel Company, of which he has hitherto been chairman, has gone out of existence, the time for the continuance of the partnership having expired. In a circular just issued he says: "This Steel having been exclusively manufactured by me for the late Imperial Steel Company, at my works at Frankford, Philadelphia, I beg to say that I have recently made great improvements in the manufacture of Self-Hardening Steel, and will be glad to supply your requirements for Tindell's Air-Hardening Steel (trade-mark copyrighted), under the firm name of the American Steel Company, Limited.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fourth and Main Sts., Cincinnati, February 18, 1891.

Pig Iron.—A stronger and more confident feeling has prevailed in the local market during the week. The large Southern furnaces have made heavy sales of both Forge and Foundry grades, and during the past two or three days an advance of 25¢ ℔ ton has been realized. Transactions have been largely for future delivery, but there have been some sales of moment for prompt shipment. The largest deliveries occur probably during the summer—that is, up to and including July sales; beyond July have been unimportant. Pipe works, agricultural implement manufacturers, stove works, rolling mills and car manufacturers have been among the largest buyers. Mottled Iron has continued scarce and within a fraction of the price prevailing for Gray Forge. The entire sales throughout the week aggregated between 30,000 and 40,000 tons. The distribution of Metal has been quite wide. There have been some liberal sales of Virginia and Northern grades, as well as of the Southern. The largest sales have been of Gray Forge, from 10,000 to 15,000 tons of this grade selling at $10 @ $10.25 ℔ ton, cash, Birmingham basis. Sales of No. 3 Foundry have been made as follows: 6000 tons at $10.50 and 3000 tons at $10.75, cash, Birmingham basis. One thousand tons of No. 2 Foundry have been made at $11, and smaller sales have ranged from $11.25 to $11.50 ℔ ton. White Iron has sold in moderate amounts at $9.30, cash, at furnace; 2300 tons Southern Car Wheel sold on the basis of $23.50, cash, Cincinnati. Sales of Virginia Iron aggregated between 3000 and 4000 tons on basis of quotations. No. 1 Foundry is scarce, and nominally quoted at $12 @ $12.25, cash, f.o.b. furnace. Liberal sales have also been made of Soft Iron.

Foundry.

Southern Coke, No. 1	$14.00 @ $15.00
Southern Coke, No. 2	13.75 @ 14.00
Southern Coke, No. 3	13.25 @ 13.50
Ohio Soft Stone Coal, No. 1	17.00 @ 17.50
Ohio Soft Stone Coal, No. 2	16.00 @ 16.50
Mahoning and Shenango Valley	17.50 @ 18.00
Hanging Rock Charcoal, No. 1	21.00 @ 22.00
Hanging Rock Charcoal, No. 2	19.50 @ 20.50
Tennessee and Alabama Charcoal, No. 1	18.00 @ 19.00
Tennessee and Alabama Charcoal, No. 2	18.50 @ 19.50

Forge.

Gray Forge	12.75 @ 13.00
Mottled Neutral Coke	12.25 @ 12.50

Car Wheel and Malleable Irons.

Southern Car Wheel	22.50 @ 23.50
Hanging Rock, Cold Blast	24.00 @ 24.50
Lake Superior Car Wheel and Malleable	21.00 @ 22.00

New York.

Office of *The Iron Age*, 96-102 Reade street, New York, February 18, 1891.

American Pig.—Current business continues on a moderate scale, with reports of low prices cropping up from time to time. Southern furnaces are blowing in rapidly, but it is claimed that orders in the West are larger and have a strengthening tendency. We quote Northern No. 1 $16.50 @ $17.50; No. 2, $15.75 @ $16.25; Forge, $14.25 @ $14.50. Southern Iron is selling on the basis of $15.25 @ $16.00 for No. 2, according to brand.

Spiegeleisen and Ferromanganese.—The recent sale of English Spiegeleisen is reported to have been made at a low figure. It seems that the demand for Steel Rails in Great Britain is so slack that the demand for Spiegeleisen has fallen off very seriously, and makers have been accumulating stock. German 20 %, too, has been offered at low figures. We quote $27.75 @ $28.50 German and English 20 %. The growing production of Spiegel in the West, the Illinois Steel Company now having two furnaces in blast on manganiferous material, threatens to cut down importations further still. Ferromanganese is lifeless at $61.50 @ $62.

Billets and Rods.—The heavy sales in Eastern territory during the past months by Western mills have cut down the home market for the Eastern works very considerably. The result is that whatever strength the Western mills may have developed lately is not reflected in this territory, although some of the Eastern mills decline to meet low quotations. There have been some sales of high-carbon Billets during the past week at private terms. We quote ordinary soft Billets $27.50 @ $28, sellers' mill. In Rods, the Eastern market is in a peculiar position. Rod capacity is in excess of requirements, and the number of outside consumers is small. We quote Rods $38 at tidewater.

Steel Rails.—The largest sale made by Eastern mills during the week is one of 4000 tons. Comparatively little new business is in the market for the Eastern mills, while there is considerably more in the West. We note one inquiry for 40,000 tons for the Northern Pacific, Duluth delivery. In the East the mills are generally asking $30, at mill, but there are indications that that price is not being lived up to. We quote $29.50 @ $30. The Eastern mills appear to have determined upon a policy of ignoring brokers, declining to pay any brokerage. It may be questioned whether this policy can be successfully adhered to, although brokerages have not for many years cut any considerable figure in the expense accounts of the Rail companies.

Manufactured Iron and Steel.—It is reported that the Astor Building has been taken by a leading firm of architectural Iron workers. There is considerable bridge work coming up, for which competition is quite sharp, however. In Plates low prices continue to be made by some of the Eastern mills. It is noted also that Open-Hearth Steel Plates are offering at low prices. We quote Angles, 2¢ @ 2.10¢; Sheared Plates, 2.05¢ @ 2.25¢; Tees, 2.5¢ @ 2.75¢, and Beams and

Channels, 3.1¢, on dock. Steel Plates are 2.05¢ @ 2.15¢ for Tank, 2.35¢ @ 2.6¢ for Shell, and 2.6¢ @ 2.7¢ for Flange, on dock. Bars are 1.7¢ @ 1.9¢, on dock.

Old Material.—There is more inquiry than there has been for some time past, and were it not for the low prices at which Muck Bar is selling, the views of holders and importers might prevail in old Iron Rails. In old Steel Rails we note sales, Philadelphia delivery, at $16.50, and offerings in this market at $17.

Fastenings,—A number of large orders are in the market, but competition is sharp. We quote Spikes $1.90 @ $1.95, and Angles, 1.75¢ @ 1.80¢, delivered.

Financial.

The more cheerful tone of the general market continues, due to the stronger monetary situation and abatement of fears respecting a "degraded currency," but there is no approach to buoyancy. In fact a degree of apprehension was caused by a renewal of gold exports, due to sensitiveness in the loan market, but it was not thought probable that any considerable amounts would go out in this way. The principal cause of a better feeling was larger purchases of American securities in London and consequent falling off in sterling exchange rates. The gold movement was looked upon as being virtually a transfer to the Bank of England, which returned to France intact the entire amount borrowed during the Baring crisis. Others said the shipment was in connection with the negotiation of the new German loan of 400,000,000 marks. The non-action of the New York Clearing House in delaying the weekly statement of the condition of individual banks occasioned remark, but in vindication of this course Chairman Tappen and others in control were said to have resolved to keep the machinery of the banks well in hand until the question about free silver coinage was decided, lest a sudden contraction of currency should compel a further issue of loan certificates. Furthermore, the clearing house is disposed to strengthen its position, on account of the rapid increase of trust companies doing a general banking business, and this argument is intensified by the run upon the American Loan and Trust Company, which is said to have lost $1,100,000 within the last few days, calling for the interposition of Superintendent Preston of the State Banking Department. The general business of the country is in good volume. The aggregate bank clearings for the week in 57 cities shows a decrease of 5 % compared with 1890, but outside of New York there was an increase of 5.2 %. New York decreased 10.7 % and Boston 4.9 %. Silver bullion was offered at the lowest price since the law of July 14 went into effect—namely, a fraction above $1 ℔ ounce. The Kansas House passed the Speaker's bill, taxing mortgages, notes, bonds or any evidence of indebtedness, by a vote of 76 to 17. The bill provides that such debts represented by these papers cannot be collected unless they bear the stamp of the assessor.

Stocks were dull throughout. Louisville and Nashville was unfavorably influenced by the resignation of President Norton, which was the signal for a bear raid on the Gould specialties, and a heavy tone followed the engagement of $1,800,000 in gold for export. It appeared from a statement by the president of the Richmond Terminal that efforts of the managers will be directed toward securing better terms from the Pennsylvania, instead of seeking to form an extensive combination with the Baltimore and Ohio. On Monday silver bullion certificates were lower on the report that Mr. Bland had abandoned all hope of silver legislation at this session, and they were also affected by lower prices from London. On Tuesday, the market declined on the announcement by the C., B. & Q. Railroad directors that the quarterly dividend had been reduced to 1 % from 1¼ %.

Government bonds were higher for the fours. Quotations as follows:

U. S. 4½s, 1891, registered	101⅞
U. S. 4½s, 1891, coupon	103
U. S. 4s, 1907, registered	120½
U. S. 4s, 1907, coupon	120⅝
U. S. currency, 6s, 1895	109

Sales of bank stock—90 shares North American at 175, 10 Western National at 100¾ and 5 Commerce at 197½.

Sterling was dull at $4.86½ @ $4.88½, which would discourage gold shipments at present.

The weekly bank statement showed an increase in loans of $4,162,100, a loss in cash of $1,106,400, while the deposit line is up $2,574,000. The loss in surplus was $1,749,975, and the banks now hold $18,492,700 above the legal limit.

There was a better inquiry for time loans, and a good business was done at 4½ per cent. for 30 to 90 days, and 5 for four to seven months. Commercial paper was in good demand for first-class, but the supply was not large. Rates were 5 per cent. for 60 to 90-day indorsed bills receivable. At Chicago there was a less active demand for loanable funds.

The merchandise markets were quiet. Spot wheat and corn slow. Coffee was stronger for the more desirable grades. Cotton was weak, too much coming from planters' hands. India rubber in good demand, and in petroleum moderate animation.

The export movements in breadstuffs and hog products have been on an enlarged scale. Unusually large shipments of flour have been made to the United Kingdom. Cotton exports for five month up to January 1 were enormous, amounting to 1,908,000,000 pounds against 1,802,000,000 for the same time in the previous year, and the amount realized was $191,000,000, an excess in the total valuation of $10,000,000. The following shows the aggregate value of exports of the principal products in January:

	1891.	1890.
Cotton	$35,038,339	$28,871,308
Breadstuffs	9,618,586	11,557,620
Beef, hog and dairy product	11,185,583	11,091,975
Oil	3,312,225	3,090,067
Total	$59,254,733	$54,610,970

Showing that the increase is nearly all in cotton.

Foreign imports at New York in January were surprisingly large, the total having amounted to $43,500,000, including $1,000,000 in specie. This is only $2,000,000 below the unprecedented imports of January, 1889. The withdrawals from warehouse for the month were $13,814,000, on account of tariff limitations. The outward shipments were $28,836,000, exclusive of specie, which is slightly in excess of those for the corresponding month last year, but they fall $3,000,000 below the amount for January, 1889. The exports from New York for seven months from July 1 in the last two years show a remarkable agreement.

Coal Market.

A mild February hightens the despondency which has settled down on the Anthracite Coal market for some weeks past. The determination to restrict fails to restrict, causing no small degree of exasperation among those who profess to have observed good faith. For example, shipments for the week ending 7th inst. are increased nearly 80,000 tons, compared with the corresponding week in 1890, and the aggregate since January 1 is 3,688,000 tons, an increase of 753,000 tons in the comparison. As affirmed by some in the trade there is a financial necessity for transporting Coal in certain cases, it being imperious that there should be a good show of freight earning, whatever the disadvantages in other respects. Prices are weak, with actual sales about as follows, f.o.b.: Broken, $3 40; Egg, $3 50; Stove, $3.75 @ $3.90; Chestnut, $3.30 @ $3.50; Steam sizes are in better supply and are quoted, f.o.b.: Pea, $3.70 @ $2.80; Buckwheat, $1.65 @ $1.75.

The Philadelphia *Press* remarks on the situation: "In coal circles it is said the agreed-upon restriction is going on, but tonnage this month does not reveal any large efforts to keep down shipments. The Lehigh Valley ran ahead of the Reading, and the contest between the New York companies was warm. The shippers of two small companies, the Ontario and Western and the Erie, have made open war by reducing the price on all rail coal to Newburgh 20 cents per ton, owing to the sharp competition of some of the older companies. . . . On the surface of things the trade is all right, but privately it is conceded that the January agreement is likely to be broken. In this case the companies which have failed to live up to their agreement will have the full responsibility for their acts put upon them." It is said that this week orders have been sent out to shut down a number of important collieries. According to appointment the Coal companies meet 26th inst. to arrange the output for March.

Bitumious Coal is easier on account of better supplies.

A Reading despatch says that on account of the scarcity of coke many furnaces in the Lebanon Valley are now using anthracite coal. Some furnaces are using part anthracite in order to bridge over the trouble. Should the strike in the coal regions continue two weeks longer, it is predicted that every stack in the Lebanon and Schuylkill Valleys will have to resort to anthracite coal for fuel.

A destructive fire in the Moyer plant, owned by Rainey & Co., is openly charged to the work of incendiaries.

The coal production of the Lehigh Coal and Navigation Company last year was 1,272,500 tons, the largest output ever made.

St. Louis.

OFFICE OF *The Iron Age*, 214 N. Sixth st., ST. LOUIS, February 16, 1891.

Pig Iron.—The Coke strike is now on, and the various explanations and theories for this action on the part of the Coke workers are in order. Whether the strike will be of long duration or not it is difficult to determine, but the chances greatly favor the latter, as the men temporarily out of employment number some 15,000 or more, and it is difficult to convince such a body of men that they will obtain their end by a strike of long duration, and they are more likely to become dissatisfied with the strike than the operators will be. Under these circumstances it seems quite likely that 30 days will be about as long as the strike will last. For these reasons consumers would do well to buy only as they need, and not load up with stocks of high-priced coke under the impression that the advanced price will be maintained. The price of Pig Iron will be slightly affected, perhaps 25¢ or 50¢ per ton, although there is no special reason for this, outside of the fact that prices have been too low for the past 6 months, and furnaces will be glad of an opportunity to advance their prices and at the same time have a reasonable excuse for so doing. During the week under review the sales have been

larger and the aggregate has been very satisfactory. This market is slow to move in sympathy with others, and sales that are made at other points from 25¢ to 50¢ ℔ ton higher than those obtained here have little or no influence on this market, and while the major part of the Iron consumed here is Southern Iron, prices are strictly St. Louis prices. The outlook is considered encouraging and with a few more weeks' business such as the one under review has been we will shortly see an upward turn in prices. Sales during the week have been at full rates, and it is difficult to induce a fur nace to quote much below the prices as quoted herewith, which are as follows :

Southern Coke, No. 1 Foundry.	$15.75 @ $16.00
Southern Coke, No. 2 Foundry.	14.75 @ 15.00
Southern Coke, No. 3 Foundry.	14.25 @ 14.50
Gray Forge	13.75 @ 14.00
Southern Charcoal, No. 1 Foundry	17.25 @ 17.50
Southern Charcoal, No. 2 Foundry	16.75 @ 17.00
Missouri Charcoal, No. 1 Foundry	15.50 @ 16.00
Missouri Charcoal, No. 2 Foundry	14.75 @ 15.25
Ohio Softeners	17.75 @ 19.25

Bar Iron.—The market continues to improve and mills are well filled with orders. Prices are firmer than one week ago, and it is only on extra good specifications that the market is shaded. We quote as follows: Lots from mill command 1.75¢ @ 1.80¢. Small lots from store are quoted at 1.85¢ @ 1.90¢.

Barb Wire.—The arrangements which have been in course of completion for the past two months, looking to the control of the Barb Wire patents, are still in an incomplete condition, although it is possible that they may be closed in the course of a week or ten days. Under the circumstances the long promised advance remains in the shape of a promise. The volume of trade is large, and mills have no difficulty in keeping their stocks pretty well cleaned up. We quote as follows: Painted Climax, 2.80¢; Glidden, 2.85¢; and Acme 2.90¢; Galvanized 60¢ additional. Carload lots, 5¢ ℔ cwt. less than above prices.

Cleveland.

CLEVELAND, February 16, 1891.

Iron Ore.—There have been no changes of importance in the local situation. Only 10,000 or 12,000 tons of Ore was sent forward to the furnaces last week, against 32,500 tons for the corresponding week in 1890. It looks very much as if the navigation [season] would open with 1,500,000 tons of Ore on the lower lake docks awaiting transportation to the valley furnaces. This, together with the fact that the furnaces have been idle for several weeks and are not likely to resume operations for some time to come, make all estimates of the Ore output for the coming season purely speculative. A careful canvass of all the Ore headquarters in this city failed to result in the gathering of any news concerning the situation. It seems to be the general opinion that vessel rates will be established on the basis of 75¢ or 80¢ ℔ ton from Escanaba, and that it will not be necessary to arrange for over 4,500,000 or 5,000,000 tons at the beginning of the season. Indeed, it is quite probable, as indicated in your Pittsburgh quotations last week, that many furnacemen will only buy Ore as they may require from time to time during the summer and fall.

Pig Iron.—There is quite a material improvement in the number of inquiries received by local dealers. Consumers seemed to have reached the conclusion that if the Coke strike becomes as serious as is now threatened it will not be an easy matter in a few weeks to obtain the iron they actually need. The demand is by no means heavy, but is an improvement over the conditions existing for the past two or three weeks. Prices are somewhat firmer, about $15.80 being demanded for Bessemer. Some inquiry for No. 1 Foundry and for Ohio Silveries is announced. Interest centers in the Coke strike, and upon its prolongation or an early adjustment of difficulties depends in a large measure the future of the Pig-Iron market. If it goes on as now seems certain prices will go up rapidly.

Manufactured Iron.—There is a fair demand at about 1.70¢ @ 1.75¢ for Common Bar. Muck Bar is weaker and prices not very firm.

Old Rails.—Valley furnacemen are reaching out for Old Americans and are paying about $24.75 per ton. Sellers ask $1 per ton more.

Scrap.—Business continues fair. No. 1 Railroad Wrought is worth $19.50 @ $20 ; Old Axles, $25 ; Wrought Turnings, $13.50 @ $14; Cast Scrap, $14.

Barb Wire.—An excellent demand is reported.

Louisville.

LOUISVILLE, KY., February 16, 1891.

Pig Iron.—There has been free buying during the week, some of the purchases being for large amounts; one transaction for 10,000 tons was on a basis of $10 for Gray Forge, at furnace, for delivery during six months. Of the Irons offered, Silvery was especially scarce, but one of the largest companies South quoted 1000 tons on a basis of $11, at furnace, for Flaky or Open. There was also some sales in quantities of 500 to 1000 tons for delivery during six months. On a lot of 1000 tons of No. 1 Foundry the price was shaded to $12, cars, Birmingham, and sale was made, though the usual basis has been $12.25. There is a general disposition on the part of consumers to take advantage of the present low prices; this is stimulated by the fact that Eastern buyers in the vicinity of Pittsburgh are causing activity among Southern Irons. A sale was made in the Pittsburgh district of No. 2 Southern Foundry at $16.15, all rail delivery, cash, cars, Pittsburgh, which is unusual, as very little Iron has gone there from the South save by river. The transaction was of Lady Ensley Iron, which is recognized as being equal to their native Irons, and they are willing to pay basis equivalent to their All-Ore brands. We quote: Southern Coke, No. 1 Foundry, $14 @ $14.50; Southern Charcoal, No. 1 Foundry, $16 @ $17; Southern Car-Wheel, $17 @ $20.

Detroit.

WILLIAM F. JARVIS & Co., Detroit, Mich., under date February 16, 1891, say : The Coke strike now being on, and there being but little doubt that it may continue for some weeks, added to the fact of the idle furnaces in the Shenango and Mahoning valleys, and still further to the unsettled condition of labor in the South, has finally caused a break in Southern Iron prices in the right direction. There were several transactions of considerable magnitude in this market for Southern Iron, chiefly for low grades, during the past week. The last Iron purchased went at from 50¢ to $1 ℔ ton higher than purchases first made in the early part of the week, and buyers seem alive to the fact that there may be, notwithstanding the recent addition to the surplus of unsold Iron, a short Iron supply if the present hindrances we have noted continue, and while this cannot be said to be a brighter outlook, it certainly is a relief to find prices on the rising plane. There were also closed some lots of Lake Superior, for Car-Wheel and malleable purposes, and there still remain some good-sized inquiries unsatisfied. Prices of Lake Superior, however, have not varied at the present writing from present quotations, and the market may be said to be as follows to-day:

Lake Superior Charcoal, all numbers	$19.00 @ $19.50
Lake Superior Coke, Bessemer	18.00 @ 18.50
Katahdin (Maine Charcoal)	23.00 @ 24.00
Lake Superior Coke Foundry, all ore	18.00 @ 18.50
Ohio Blackband (40 per cent.)	18.00 @ 18.50
Southern No. 1	16.00 @ 16.25
Southern Gray Forge	14.25 @ 15.00
Jackson County (Ohio) Silvery,	18.25 @ 18.75
Connellsville Coke	4.65

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts., CHATTANOOGA, February 16, 1891.

Pig Iron.—Higher prices appear to be at hand. Decreasing stocks and disturbances in the Coke regions can hardly have any other effect than to send up prices, at least to some extent. Inquiries are more numerous than ever, and figures that are being named by the furnaces in most cases are being accepted. The coming week will probably see a much better condition of the market than has been seen for some time.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, February 18, 1891.

Pig Iron.—We have had a decidedly more active and stronger market during the past week, and that, too, at a pretty sharp advance. Forge Irons have advanced 50¢ ℔ ton, while in Bessemer Iron the advance has been still greater. The advance, while not unlooked for, came sooner than generally expected. It is needless to say that it was caused chiefly by the Coke strike, which, if continued any length of time, will add to the already large number of idle furnaces, and thereby still more reduce production of Pig Iron. As intimated in our report a few weeks ago, when the Coke strike was almost assured, consumers low in stock should have bought when they could have done so to much better advantage than at present, but they nearly held back after the strike was a certainty, and then they all went on the market at once, with the result noted. Bessemer Pig is in scant supply, both here and in the valley districts, and, with considerable inquiry, it is held with more confidence than any other kind. Furnacemen whose furnaces are still in blast are loth to contract for future deliveries, owing to the uncertainty of the Coke strike, which may be settled in a few days and may hold out many weeks. City furnaces have been supplying the demand here chiefly for some time past, the valley furnaces having been able to do better at home, but the former are not now on the market to any extent, being pretty well sold ahead, and then they, too, have trouble in getting Coke, notwithstanding some of them make their own Coke and their men have no connection with the strikers. It is hard to foretell what influences may be brought to bear to get those who are still at work to join with the strikers. It is evident that with so many furnaces out that shocks of Pig Iron are being rapidly reduced, and it is not strange that furnacemen having the advantage are making the best possible use of the same. There are over three thousand tons of Southern Iron from the Birmingham, Ala., district, en route to Wheeling and Pittsburgh by river; but this is the present condition of affairs, and will have little or no influence on this market. The future of the market will

be governed mainly by the Coke strike. At present there does not appear to be any prospect of a collapse of the same. We quote prices as follows:

Neutral Gray Forge	$14.25 @	$14.50.	cash.
All-Ore Mill	15.00 @	15.25,	"
White and Mottled	13.50 @	14.00,	"
No. 1 Foundry	16.25 @	16.50,	"
No. 2 Foundry	15.25 @	15.50,	"
No. 3 Foundry	14.75 @	15.00,	"
No. 1 Charcoal Foundry	23.50 @	24.00,	"
No. 2 Charcoal Foundry	21.50 @	22.00,	"
Bessemer Iron	16.00 @	16.50,	"

There have been no sales reported here as yet above $16, cash, but sales have been made in the valley districts at $16 at furnace there, to go to other points, which would be equal to $16.80, delivered in Pittsburgh. There is some Bessemer Iron in second hands which is liable to go on the market at any time, and some of the valley furnacemen have considerable, but it is not for sale at present prices.

Muck Bar.—There has been rather more inquiry the past week, and the market is firmer, in sympathy with Pig Iron. We are advised of sales of some 2000 tons at $27 @ $27.50, cash, which may be regarded as current rates; but they are liable to be advanced if raw material goes still higher. However a good many of the mills have a pretty good stock worked up, and it is not expected, therefore, that there will be the urgency in the demand that has characterized Pig Iron the past week.

Old Rails.—There appears to be but little inquiry for Iron Rails, but an improved demand is looked for later on in the season. There is a continued good demand for Old Steel Rails for remelting and prices have further advanced. We are advised of sales of 1000 tons at $17.50, and we now quote at $17.75 @ $18.

Billets and Slabs.—Bessemer Steel Billets are fairly quoted at $26 @ $26.50.

Wire Rods.—There has been very little business reported for a week or two. The Braddock is standing still, owing to labor troubles. We note a sale of 1500 tons at $38.

Barb Wire—Is still quoted at 2.60¢ @ 2.75¢ for Painted and 3.10¢ @ 3.25¢ for Galvanized, with a very fair business.

Old Material.—Sales of No. 1 Railroad Wrought Scrap $20 per net ton; Old Car Wheels, $27 @ $28; Wrought Iron Turnings, $14 @ $15; Cast Scrap, $14.50, gross; Car Wheels, $17; Steel Rail and Bloom Ends at $17.50 @ $18.

Coke.—The strike in the Connellsville region has placed a quietus on the Coke trade, and no improvement may be looked for while it continues.

Metal Market.

Copper.—On Lake Superior product there has been no change the past week. The leading producers adhere to the policy that has been characteristic of their position for some time past, and, whether influenced or not by the prices made on sales at second hands and by some of the smaller companies, permit 15¢ to stand as their "nominal" price. Meanwhile small quantities come out from one source or another at 14¼¢ @ 14½¢, which prices fairly reflect market value at the present time. It is stated that new contracts involving considerable quantities of electrical supplies are under treaty, which, if closed, will necessarily lead to a better demand for crude material, and there are also reports of improvement in the demand for various lines of Brass goods that are not without some bearing upon the situation. The fact remains, however, that consumers are extremely conservative, and that supplies are steadily increasing at the mines. Arizona Ingot is still quoted at 12¾¢ @ 13¢, and finds only moderate sale. The demand for casting brands has improved, and the market for that class of material shows better tone. Upward of 500,000 lb have been sold the past week at 11¼¢ @ 11½¢, and at the close it was doubtful that even the poorer varieties could be secured at less than 11½¢. James Lewis & Co.'s circular, Liverpool, February 3, is authority for the statement that during the fortnight prior to the date mentioned large quantities of Matte (American) were sold there at the equivalent of 9½¢ ₱ lb of Copper in New York, and about 3000 tons of Lake Ingots in France at 13¢. This doubtless includes the export transactions referred to in *The Iron Age* a few weeks ago. Returns from 12 Lake Superior companies (Osceola not included) show a total of 5936 tons of mineral produced last month, against 5012 tons in January, 1890, and 4728 tons in 1889. The entire output of fine Copper for the month is estimated at fully 8,250,000 lb. Should the January increase be maintained in following months the Lake production for the year will exceed 115,000,000 lb. The gain last month was chiefly at the larger mines.

Pig Tin.—The movement of prices for this metal has been uninterruptedly downward. All surrounding influences have contributed more or less to the depression. The depreciation in the value of Silver has played a part. Free shipments of supplies from the East helped in no uncertain way, and extremely conservative speculative buying, along with some "bear" pressure, appears to have offset rather freer purchases by consumers. In this market the fall has been about 0.30¢ ₱ lb. Spot stock in 10-ton lots sold at 19.80¢, net cash, which price was also accepted for all deliveries at sellers' option this month and next. Jobbing parcels went at as low as 20¢ regular. On Wednesday's market there was a better feeling, due to a reaction in London. On the Metal Exchange 19.85¢ bid for spots and futures, while 20¢ was generally asked.

Pig Lead.—Prices have moved a fraction lower, without stimulating business in the slightest extent. Consumers are very indifferent, jobbers manifest no inclination to venture with larger quantities than single carloads, and speculative interest remains dormant. Carload lots may be had at 4.30¢ for early delivery, but consumers do not offer more than 4¼¢ at the moment. On the Exchange 4.30¢ was recorded bid for near and 4.32½¢ @ 4.35¢ for distant future deliveries.

Spelter.—No change in the condition of the market has taken place during the past week. The offering is practically on the same lines that it was a week ago, and evidence is wanting of any improvement in actual sales or in the demand. Prime Western in carload lots is still quoted at 5.05¢ for early shipment.

Antimony.—Cookson's is quoted at 17¾¢ @ 18¢, with the movement somewhat better, owing, doubtless, to smaller offerings of LX, which has latterly been taken in the place of the popular English brand to some extent. The nominal price for LX is 16¾¢; Hallett's has been selling at 16¢ @ 16½¢, as to quantity.

Tin Plate.—Coke Finish Plates have had rather freer sale on the spot and improvement is also noted in sales of futures. Prices have ruled slightly irregular, owing chiefly to realizations on early purchases, but show greater steadiness at the close. In Ternes there is little or nothing more than the routine movement, and purchases of Charcoal are still comparatively light. Quotations for large lots on the spot are as follows: Coke Tins—Penlan grade, IC, 14 x 20, scarce; J. B. grade, do., $5.50 @ $5.55. Bessemer do., $5.45; Siemens Steel, $5.55. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $5.65; Siemens Steel, IC basis, $5.75; IX basis, $6.75. IC Charcoals — Melyn grade, $6.25; for each additional X add $1.50; Allaway grade, $6; Grange grade, $6.12½; for each additional X add $1. Charcoal Ternes — Worcester, 14 x 20, $5.65; 20 x 28, $11; M. F., 14 x 20, $7.75; do., 20 x 28, $15.50; Dean, 14 x 20, $5.25; do., 20 x 28, $10.35; D. R. D. grade, 14 x 20, $4.95; do., 20 x 28, $10; Mansel, 14 x 20, $5; do., 20 x 28, $10.10; Alyn, 14 x 20, $5.15; do., 20 x 28, $10.25; Dyffryn, 14 x 20, scarce; do., 20 x 28, $10.50. Wasters—S. T. P. grade, 14 x 20, $4.80; do., 20 x 28, $9.62½; Abercarne grade, 14 x 20, $4.80; do., 20 x 28, $9.50.

C. Kirchhoff, special agent of the United States Geological Survey, in a preliminary report makes the following statement of the production of Spelter in the United States:

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Eastern and Southern States	9,561	10,591	9,114
Totals	55,903	59,188	63,683

For the first time complete returns of stocks on hand have been received. The following are the aggregates:

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	Jan. 1, 1890.	Jan. 1, 1891.
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East and South	1,096	788
Totals	1,268	1,134

The stock in hands of producers is therefore small, considering the magnitude of the industry.

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The following sales are reported:

THURSDAY, February 12.
25 tons Tin, February ..... 19.90¢

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10 tons Tin, February ..... 19.85¢

MONDAY, February 16.
20 tons Tin, June ..... 20.00¢
25 tons Tin, March ..... 19.85¢
25 tons Tin, February ..... 19.85¢

TUESDAY, February 17.
25 tons Tin, March ..... 19.80¢
25 tons Tin, delivery February 28 ..... 19.80¢
25 tons Tin, April ..... 19.85¢

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, February 18, 1891.

Scotch warrants have been more freely offered, but prices have moved within narrow limits since the early part of the week when speculation was enlivened somewhat by a combination of circumstances conducive to speculation. Prominent in this connection was a scarcity of warrants, prompted by purchases due to the easy money market and belief that a large "bear" account is outstanding that may be contested to advantage. More furnaces are about to be put in blast, including the Shotts, Dixons and Coltness. Cleveland warrants have averaged slightly and Hematites rather lower. Hematite makers are damping furnaces with a view to reducing stocks and lessening the influence of warrant holders upon the mar-

larger and the aggregate has been very satisfactory. This market is slow to move in sympathy with others, and sales that are made at other points from 25¢ to 50¢ ℔ ton higher than those obtained here have little or no influence on this market, and while the major part of the Iron consumed here is Southern Iron, prices are strictly St. Louis prices. The outlook is considered encouraging and with a few more weeks' business such as the one under review has been we will shortly see an upward turn in prices. Sales during the week have been at full rates, and it is difficult to induce a furnace to quote much below the prices as quoted herewith, which are as follows:

Southern Coke, No. 1 Foundry	$15.75 @ $16.00
Southern Coke, No. 2 Foundry	14.75 @ 15.00
Southern Coke, No. 3 Foundry	14.25 @ 14.50
Gray Forge	13.75 @ 14.00
Southern Charcoal, No. 1 Foundry	17.25 @ 17.50
Southern Charcoal, No. 2 Foundry	16.75 @ 17.00
Missouri Charcoal, No. 1 Foundry	15.50 @ 16.00
Missouri Charcoal, No. 2 Foundry	14.75 @ 15.25
Ohio Softeners	17.75 @ 19.25

Bar Iron.—The market continues to improve and mills are well filled with orders. Prices are firmer than one week ago, and it is only on extra good specifications that the market is shaded. We quote as follows: Lots from mill command 1.75¢ @ 1.80¢. Small lots from store are quoted at 1.85¢ @ 1.90¢.

Barb Wire.—The arrangements which have been in course of completion for the past two months, looking to the control of the Barb Wire patents, are still in an incomplete condition, although it is possible that they may be closed in the course of a week or ten days. Under the circumstances the long promised advance remains in the shape of a promise. The volume of trade is large, and mills have no difficulty in keeping their stocks pretty well cleaned up. We quote as follows: Painted Climax, 2.80¢; Glidden, 2.85¢; and Acme 2.90¢; Galvanized 60¢ additional. Carload lots, 5¢ ℔ cwt. less than above prices.

Cleveland.

CLEVELAND, February 16, 1891.

Iron Ore.—There have been no changes of importance in the local situation. Only 10,000 or 12,000 tons of Ore was sent forward to the furnaces last week, against 32,500 tons for the corresponding week in 1890. It looks very much as if the navigation season would open with 1,500,000 tons of Ore on the lower lake docks awaiting transportation to the valley furnaces. This, together with the fact that the furnaces have been idle for several weeks and are not likely to resume operations for some time to come, make all estimates of the Ore output for the coming season purely speculative. A careful canvass of all the Ore headquarters in this city failed to result in the gathering of any news concerning the situation. It seems to be the general opinion that vessel rates will be established on the basis of 75¢ or 80¢ ℔ ton from Escanaba, and that it will not be necessary to arrange for over 4,500,000 or 5,000,000 tons at the beginning of the season. Indeed, it is quite probable, as indicated in your Pittsburgh quotations last week, that many furnacemen will only buy Ore as they may require from time to time during the summer and fall.

Pig Iron.—There is quite a material improvement in the number of inquiries received by local dealers. Consumers seemed to have reached the conclusion that if the Coke strike becomes as serious as is now threatened it will not be an easy matter in a few weeks to obtain the iron they actually need. The demand is by no means heavy, but is an improvement over the conditions existing for the past two or three weeks. Prices are somewhat firmer, about $15.80 being demanded for Bessemer. Some inquiry for No. 1 Foundry and for Ohio Silveries is announced. Interest centers in the Coke strike, and upon its prolongation or an early adjustment of difficulties depends in a large measure the future of the Pig-Iron market. If it goes on as now seems certain prices will go up rapidly.

Manufactured Iron.—There is a fair demand at about 1.70¢ @ 1.75¢ for Common Bar. Muck Bar is weaker and prices not very firm.

Old Rails.—Valley furnacemen are reaching out for Old Americans and are paying about $24.75 per ton. Sellers ask $1 per ton more.

Scrap.—Business continues fair. No. 1 Railroad Wrought is worth $19.50 @ $20; Old Axles, $25; Wrought Turnings, $13.50 @ $14; Cast Scrap, $14.

Barb Wire.—An excellent demand is reported.

Louisville.

LOUISVILLE, KY., February 16, 1891.

Pig Iron.—There has been free buying during the week, some of the purchases being for large amounts; one transaction for 10,000 tons was on a basis of $10 for Gray Forge, at furnace, for delivery during six months. Of the Irons offered, Silvery was especially scarce, but one of the largest companies South quoted 1000 tons on a basis of $11, at furnace, for Flaky or Open. There was also some sales in quantities of 500 to 1000 tons for delivery during six months. On a lot of 1000 tons of No. 1 Foundry the price was shaded to $12, cars, Birmingham, and sale was made, though the usual basis has been $12.25. There is a general disposition on the part of consumers to take advantage of the present low prices; this is stimulated by the fact that Eastern buyers in the vicinity of Pittsburgh are causing activity among Southern Irons. A sale was made in the Pittsburgh district of No. 2 Southern Foundry at $16.15, all rail delivery, cash, cars, Pittsburgh, which is unusual, as very little Iron has gone there from the South save by river. The transaction was of Lady Ensley Iron, which is recognized as being equal to their native Irons, and they are willing to pay basis equivalent to their All-Ore brands. We quote: Southern Coke, No. 1 Foundry, $14 @ $14.50; Southern Charcoal, No. 1 Foundry, $16 @ $17; Southern Car-Wheel, $17 @ $20.

Detroit.

WILLIAM F. JARVIS & Co., Detroit, Mich., under date February 16, 1891, say: The Coke strike now being on, and there being but little doubt that it may continue for some weeks, added to the fact of the idle furnaces in the Shenango and Mahoning valleys, and still further to the unsettled condition of labor in the South, has finally caused a break in Southern Iron prices in the right direction. There were several transactions of considerable magnitude in this market for Southern Iron, chiefly for low grades, during the past week. The last Iron purchased went at from 50¢ to $1 ℔ ton higher than purchases first made in the early part of the week, and buyers seem alive to the fact that there may be, notwithstanding the recent addition to the surplus of unsold Iron, a short Iron supply if the present hindrances we have noted continue, and while this cannot be said to be a brighter outlook, it certainly is a relief to find prices on the rising plane. There were also closed some lots of Lake Superior, for Car-Wheel and malleable purposes, and there still remain some good-sized inquiries unsatisfied. Prices of Lake Superior, however, have not varied at the present writing from present quotations, and the market may be said to be as follows to-day:

Lake Superior Charcoal, all numbers	$19.00 @ $19.50
Lake Superior Coke, Bessemer	18.00 @ 18.50
Katahdin (Maine Charcoal)	23.00 @ 24.00
Lake Superior Coke Foundry, all ore	18.00 @ 18.50
Ohio Blackband (40 per cent.)	18.00 @ 18.50
Southern No. 1	16.00 @ 16.25
Southern Gray Forge	14.25 @ 15.00
Jackson County (Ohio) Silvery,	18.25 @ 18.75
Connellsville Coke	4.65

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts., CHATTANOOGA, February 16, 1891.

Pig Iron.—Higher prices appear to be at hand. Decreasing stocks and disturbances in the Coke regions can hardly have any other effect than to send up prices, at least to some extent. Inquiries are more numerous than ever, and figures that are being named by the furnaces in most cases are being accepted. The coming week will probably see a much better condition of the market than has been seen for some time.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, February 18, 1891.

Pig Iron.—We have had a decidedly more active and stronger market during the past week, and that, too, at a pretty sharp advance. Forge Irons have advanced 50¢ ℔ ton, while in Bessemer Iron the advance has been still greater. The advance, while not unlooked for, came sooner than generally expected. It is needless to say that it was caused chiefly by the Coke strike, which, if continued any length of time, will add to the already large number of idle furnaces, and thereby still more reduce production of Pig Iron. As intimated in our report a few weeks ago, when the Coke strike was almost assured, consumers low in stock should have bought when they could have done so to much better advantage than at present, but they nearly held back after the strike was a certainty, and then they all went on the market at once, with the result noted. Bessemer Pig is in scant supply, both here and in the valley districts, and, with considerable inquiry, it is held with more confidence than any other kind. Furnacemen whose furnaces are still in blast are loth to contract for future deliveries, owing to the uncertainty of the Coke strike, which may be settled in a few days and may hold out many weeks. City furnaces have been supplying the demand here chiefly for some time past, the valley furnaces having been able to do better at home, but the former are not now on the market to any extent, being pretty well sold ahead, and then they, too, have trouble in getting Coke, notwithstanding some of them make their own Coke and their men have no connection with the strikers. It is hard to foretell what influences may be brought to bear to get those who are still at work to join with the strikers. It is evident that with so many furnaces out that shocks of Pig Iron are being rapidly reduced, and it is not strange that furnacemen having the advantage are making the best possible use of the same. There are over three thousand tons of Southern Irom from the Birmingham, Ala., district, en route to Wheeling and Pittsburgh by river; but this is the present condition of affairs, and will have little or no influence on this market. The future of the market will

be governed mainly by the Coke strike. At present there does not appear to be any prospect of a collapse of the same. We quote prices as follows:

Neutral Gray Forge	$14.25 @	$14.50,	cash.
All-Ore Mill	15.00 @	15.25,	"
White and Mottled	13.50 @	14.00,	"
No. 1 Foundry	16.25 @	16.50,	"
No. 2 Foundry	15.25 @	15.50,	"
No. 3 Foundry	14.75 @	15.00,	"
No. 1 Charcoal Foundry	23.50 @	24.00,	"
No. 2 Charcoal Foundry	21.50 @	22.00,	"
Bessemer Iron	16.00 @	16.50,	"

There have been no sales reported here as yet above $16, cash, but sales have been made in the valley districts at $16 at furnace there, to go to other points, which would be equal to $16.80, delivered in Pittsburgh. There is some Bessemer Iron in second hands which is liable to go on the market at any time, and some of the valley furnacemen have considerable, but it is not for sale at present prices.

Muck Bar.—There has been rather more inquiry the past week, and the market is firmer, in sympathy with Pig Iron. We are advised of sales of some 2000 tons at $27 @ $27.50, cash, which may be regarded as current rates; but they are liable to be advanced if raw material goes still higher. However a good many of the mills have a pretty good stock worked up, and it is not expected, therefore, that there will be the urgency in the demand that has characterized Pig Iron the past week.

Old Rails.—There appears to be but little inquiry for Iron Rails, but an improved demand is looked for later on in the season. There is a continued good demand for Old Steel Rails for remelting and prices have further advanced. We are advised of sales of 1000 tons at $17.50, and we now quote at $17.75 @ $18.

Billets and Slabs.—Bessemer Steel Billets are fairly quoted at $26 @ $26.50.

Wire Rods.—There has been very little business reported for a week or two. The Braddock is standing still, owing to labor troubles. We note a sale of 1500 tons at $38.

Barb Wire—Is still quoted at 2.60¢ @ 2.75¢ for Painted and 3.10¢ @ 3.25¢ for Galvanized, with a very fair business.

Old Material.—Sales of No. 1 Railroad Wrought Scrap $20 per net ton; Old Car Wheels, $27 @ $28; Wrought Iron Turnings, $14 @ $15; Cast Scrap, $14.50, gross; Car Wheels, $17; Steel Rail and Bloom Ends at $17.50 @ $18.

Coke.—The strike in the Connellsville region has placed a quietus on the Coke trade, and no improvement may be looked for while it continues.

Metal Market.

Copper.—On Lake Superior product there has been no change the past week. The leading producers adhere to the policy that has been characteristic of their position for some time past, and, whether influenced or not by the prices made on sales at second hands and by some of the smaller companies, permit 15¢ to stand as their "nominal" price. Meanwhile small quantities come out from one source or another at 14¼¢ @ 14½¢, which prices fairly reflect market value at the present time. It is stated that new contracts involving considerable quantities of electrical supplies are under treaty, which, if closed, will necessarily lead to a better demand for crude material, and there are also reports of improvement in the demand for various lines of Brass goods that are not without some bearing upon the situation. The fact remains, however, that consumers are extremely conservative, and that supplies are steadily increasing at the mines. Arizona Ingot is still quoted at 12¾¢ @ 13¢, and finds only moderate sale. The demand for casting brands has improved, and the market for that class of material shows better tone. Upward of 500,000 lb have been sold the past week at 11¼¢ @ 11½¢, and at the close it was doubtful that even the poorer varieties could be secured at less than 11½¢. James Lewis & Co.'s circular, Liverpool, February 3, is authority for the statement that during the fortnight prior to the date mentioned large quantities of Matte (American) were sold there at the equivalent of 9½¢ ₱ lb of Copper in New York, and about 3000 tons of Lake Ingots in France at 13¢. This doubtless includes the export transactions referred to in *The Iron Age* a few weeks ago. Returns from 12 Lake Superior companies (Osceola not included) show a total of 5936 tons of mineral produced last month, against 5012 tons in January, 1890, and 4728 tons in 1889. The entire output of fine Copper for the month is estimated at fully 8,250,000 lb. Should the January increase be maintained in following months the Lake production for the year will exceed 115,000,000 lb. The gain last month was chiefly at the larger mines.

Pig Tin.—The movement of prices for this metal has been uninterruptedly downward. All surrounding influences have contributed more or less to the depression. The depreciation in the value of Silver has played a part. Free shipments of supplies from the East helped in no uncertain way, and extremely conservative speculative buying, along with some "bear" pressure, appears to have offset rather freer purchases by consumers. In this market the fall has been about 0.30¢ ₱ lb. Spot stock in 10-ton lots sold at 19.80¢, net cash, which price was also accepted for all deliveries at sellers' option this month and next. Jobbing parcels went at as low as 20¢ regular. On Wednesday's market there was a better feeling, due to a reaction in London. On the Metal Exchange 19.85¢ bid for spots and futures, while 20¢ was generally asked.

Pig Lead.—Prices have moved a fraction lower, without stimulating business in the slightest extent. Consumers are very indifferent, jobbers manifest no inclination to venture with larger quantities than single carloads, and speculative interest remains dormant. Carload lots may be had at 4.30¢ for early delivery, but consumers do not offer more than 4¼¢ at the moment. On the Exchange 4.30¢ was recorded bid for near and 4.32½¢ @ 4.35¢ for distant future deliveries.

Spelter.—No change in the condition of the market has taken place during the past week. The offering is practically on the same lines that it was a week ago, and evidence is wanting of any improvement in actual sales or in the demand. Prime Western in carload lots is still quoted at 5.05¢ for early shipment.

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ket. Latest sales were at 46/10 @ 46/11 for Scotch, 41/9 @ 41/10½ for Cleveland and 50/ for Hematites.

The West Cumberland Works, at Workington, are about stopping, owing to slackness of demand.

There is no improvement in the demand for Old Iron, and some holders are offering at lower prices. Quotations as low as 60/, f.o.b., have been made on Flanges.

Block Tin was firm early in the week, but free selling against liberal shipments from the Straits subsequently caused a downward movement, and the market has latterly shown weakness, with comparatively little outside speculative interest.

Merchant Copper sold at as high as £53 for prompts early in the week, but declined later to £52. 10/, owing to falling off in the demand for warrants. European spot stocks have decreased 656 tons and the visible supply 1049 tons during the past fortnight. Sales of furnace material include 300 tons Montana Matte at 10/ ℔ unit.

In the market for Tin Plate the feeling is still "bullish," and the demand is good, although American buying shows less spirit. The probability of a quieter demand from the States in June is already being anticipated by some makers, however, who are making some concession on prices for that month and later deliveries.

Scotch Pig Iron.—In makers' brands there is little doing, and prices, as quoted, are greatly nominal.

No. 1 Coltness,	f.o.b.	Glasgow	..
No. 1 Summeriee,	"	"	..
No. 1 Gartsherrie,	"	"	..
No. 1 Langloan,	"	"	..
No. 1 Carnbroe,	"	"	52/
No. 1 Shotts,	"	at Leith	..
No. 1 Glengarnock,	"	Ardrossan	..
No. 1 Dalmellington,	"	"	50/6
No. 1 Eglinton,	"	"	50/

Steamer freights, Glasgow to New York, 2/: Liverpool to New York, 10/.

Cleveland Pig.—Business is without improvement, and prices show very little change. Makers quote at 42/ for No. 3 Middlesborough, f.o.b.

Bessemer Pig.—The demand continues slow, and the market is weak at a further decline. Makers quote 52/6 for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port.

Spiegeleisen.—There has been a fairly active movement and prices are steady. English 20 % quoted at 97/6, f.o.b. shipping port.

Steel Rails.—No improvement in the demand is noted and prices are without change. Heavy sections quoted at £4. 15/ and light sections £5.10/ @ £6, f.o.b. at N. W. England shipping point.

Steel Blooms.—Sales have been light and the demand continues very slow. Makers offer at £4. 10/ for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—There has been less demand, but prices have not changed. Bessemer, 2½ x 2½ inches, £4. 15/, f.o.b. at N. W. England shipping point.

Steel Slabs.—Transactions have been moderate and prices are barely steady. Bessemer quoted at £4. 15/, f.o.b. at N. W. England shipping point.

Old Iron Rails.—Demand runs very slow. Prices are unsettled and in buyers' favor. Tees quoted at £3 @ £3. 2/6 and Double Heads £3. 2/6 @ £3. 5/, f.o.b.

Scrap Iron.—Business is slow and prices are without change. Heavy Wrought quoted at £2. 5/ @ £2. 7/6, f.o.b.

Crop Ends.—A small business at old prices. Bessemer quoted at £2. 17/6 @ £3, f.o.b.

Tin Plate.—The demand momentarily moderate. Holders remain firm on prices. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade	19/3 @ 19/6
IC Bessemer Steel, Coke finish	18/ @ 18 6
IC Siemens " " "	18/3 @ 18/9
IC Coke, B. V. grade	17/9 @ 18/
Charcoal Terne, Dean grade	17/6 @ 17/9

Manufactured Iron.—In this line business has improved somewhat, but prices are irregular. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Marked Bars	8	10	0	@	8	15	0
" Common "	6	5	0	@	6	7	6
Staff. Bl'k Sheet, singles	7	2	6	@	7	5	0
Welsh Bars (f.o.b. Wales)	5	17	6	@	6	0	0

Copper.—The market stronger at the close and rather more active. Merchant Bars quoted at £53, spot, and £53. 7/6, three months' futures. Best Selected, £58. 10/

Tin.—Prices improved to-day on freer purchases and smaller offering. Straits quoted at £90. 5/, spot, and £90. 10/ for three months' futures.

Lead.—There is only a moderate movement. Prices are steady at £12. 7/6 @ £12. 10/ quoted for Soft Spanish.

Spelter.—Demand is fair and the market steady at £23. 12/6 @ £23. 15/ for Ordinary Silesian.

OBITUARY.

ROBERT F. MUSHET.

There died at Cheltenham, England on January 29, in the eightieth year of his age, a gentleman who was well known in the steel trade—Robert F. Mushet, the inventor of "Mushet's special steel." Mr. Mushet had the reputation of being one of the most skilled of English metallurgists. In 1875 the Iron and Steel Institute awarded to him the Bessemer gold medal, "in recognition of his great improvements in the manufacture of iron and steel." Sir Isaac Lowthian Bell, F.R.S., in his "Principles of the Manufacture of Iron and Steel," acknowledges the great value of a suggestion of Mr. Mushet in regard to Bessemer steel, which was then unsuited for treatment in the converter. Mr. Mushet proposed to empoly manganese, which successfully removed all impediments to the new method. He patented another idea—the addition of spiegel iron o the contents of the converter. "By the aid of this valuable and important discovery," says Sir I. Lowthian Bell, "the 'red shortness' which rendered Bessemer metal unmanageable in the subsequent stages of manufacture was entirely removed." Two sons—Henry Mushet and Edward M. Mushet—are still actively engaged at Sheffield (Clyde Steel and Iron Works) in superintending the manufacture of Mr. Mushet's steels.

ARTEMAS SAHLER.

Artemas Sahler, senior member of the hardware firm of Sahler, Reynolds & Webster, Kingston, N. Y., died on the 7th inst. at his home, in that city, in the fifty-eighth year of his age. Mr. Sahler was born in Rochester on January 12, 1834, and passed his boyhood days at Clifton Springs. When 19 years old Mr. Sahler engaged in banking at Omaha. About this time Jacob Sahler, an uncle of the deceased and a member of the hardware firm of Sahler & Sharpe of Kingston, dying, Artemas Sahler removed to Kingston and with David Vignes continued the business under the firm name of Sahler & Vignes. During the remainder of his life Mr. Sahler was largely engaged in the hardware business, and was recognized as one of the most active and enterprising merchants in that line in the county. The style of the firm with which he was connected has seen many changes, having been Sahler & Vignes, Sahler, Reynolds & Du Bois, Sahler & Reynolds, Crosby, Sahler & Co., and Sahler, Reynolds & Webster. Mr. Sahler had been connected with the Overlook Mountain House Company, the Kingston National Bank and the Wallkill Valley Railroad, and had served creditably in the Common Council of Kingston for two terms. His death was caused by la grippe, of which he had a severe attack about a year ago.

EDWARD W. SEEGER.

Under date February 7, 1891, the directors of the Springfield Foundry Company, Springfield, Mass., announce the death of the treasurer and associate manager of the company, Edward W. Seeger, which occurred at his home in Springfield on the 5th inst.

LINCOLN KILBOURNE.

Lincoln Kilbourne, Columbus, Ohio, died suddenly Thursday evening, February 12, of heart failure. He was born at Worthington, Franklin County, Ohio, in 1810, and was the founder of the wholesale and retail hardware business carried on under the name of Kilbourne & Jones at 143 South High street, Columbus, in which he was actively engaged up to the time of his death, his business connection covering a period of over half a century. Two sons survive the deceased, Col. James Kilbourne, founder and head of the Kilbourne & Jacobs Mfg. Company, also of Columbus, and Captain L. G. Kilbourne. He also leaves a daughter, Mrs. Gen. J. D. Potter.

The Morgan continuous mill of the American Wire Company of Cleveland, Ohio, has been recently modified. Finding that the extra price which it was possible to realize for No. 9 rods, which the mill had been rolling, was not large, some of the passes were dropped and the mill turned out No. 5 rods. Its production has been increased very greatly, the only drawback being that the rods leave the last pass very hot.

The high and low pressure cylinder heads of one of the engines of the Iowa Barb Wire Company's rod mill were blown out last week. The mill is running, however, with one engine, turning out about one-half of its usual product.

The report published in the Pittsburgh papers last week that a special meeting of the officials of the Amalgamated Association of Iron and Steel Workers had been held in that city for the purpose of taking action on the scale to be presented to the manufacturers in June next, is without foundation. We are advised that the statement that the base of the scale would be changed from bar iron to some other kind is untrue. There will be no action taken on matters of this kind until the next regular annual convention of the association, which will be held in Allegheny, Pa., in June next.

John Birkinbine of Philadelphia has been elected president of the American Institute of Mining Engineers.

HARDWARE.

Condition of Trade.

FROM THE REPORTS given below from representative houses in the principal centers a correct idea can be obtained of the condition of business throughout the country. It will be observed that in most of these reports something of an improvement in the volume of business is noted and reference made to a satisfactory trade, with excellent prospects for coming months. There have been but few changes in price since our last review. Collections are fair, but some complaint is made in regard to them.

Chicago.

(*By Telegraph.*)

The volume of business is lighter, trade continuing to shrink, just as was set forth last week. February will probably show the least satisfactory record of any month for over a year, owing to storms and bad weather, rains and muddy roads throughout the Northwest interfering with outdoor work as well as with the movement of goods. Prices are remarkably steady in staple lines.

St. Louis.

(*By Telegraph.*)

Business continues to show a healthy increase over the corresponding period of last year. The mail-order trade is large and salesmen are meeting with success in every direction. The demand for Vehicles and Agricultural Implements has fallen off somewhat, but is still moderately large. Copper Goods continue weak. Cut Nails are quiet at $1.95 to $2; Wire Nails are active at from $2.40 to $2.45; Painted Barb Wire is quoted at 2.85 cents. The cold snap has caused a decline in building and the demand for Building Tools and material is light. Collections are only fair.

Baltimore.

CARLIN & FULTON.—The great activity in business which always accompanies the month of January has generally spent its force before the close of February, and trade by that time has resumed its regular channels, and while not actually dull is still not far from it. Every one seems waiting for the advent of spring, which may possibly result in a little more than a higher temperature and the mere lengthening of days, by bringing with it the knowledge of how soon we are to experience either the benefits or the troubles arising from an unlimited silver coinage. The hopes of manufacturers and exporters are now being raised by the practical application of the doctrines of reciprocity, though these bright prospects are, however, shadowed by the thought that we as a nation have no merchant marine of our own with which to conduct the trade. The air is full of rumors of great railroad deals or combinations and of impending labor strikes, which are generally chronic with the approaching season, but it is to be hoped that a spirit of compromise and conciliation will prevent the suffering and disaster which always follow these protracted struggles. The country has passed through a great financial crisis with but little injury to its commercial interests, and as now preparations must soon be made for the great crops of the next season, there will be work enough for all, both the farmer and the manufacturer, and then, with employment for the great railroads and transportation companies throughout the land, we may all hope and expect a good business with satisfactory results.

Louisville.

W. B. BELKNAP & CO.—The market generally is devoid of any especially interesting features. There is some effort on the part of manufacturers to make a little capital out of the coke strike, and more or less promises made as to what it is going to do if it lasts long enough. Up to now its only influence has been the withdrawal of some extremely low prices on Iron, both Sheet and Bar, and the fairly-well established advance on Steel Nails. Both Steel and Wire Nails are selling very freely, but there is some difficulty in getting full supplies. The same remark applies to Barbed Wire. The fine, open winter has permitted almost uninterrupted work out of doors, and Fencing and all out of door supplies have been in constant demand. Our Louisville winter up to now has been about like the average New Orleans winter as to temperature and fair skies.

Probably that which has occasioned the most stir in the Hardware world is the dissolution of the Ammunition contract, with the withdrawal of restrictions as to selling, rebates, &c. It seems, however, to be a very good understanding among those most concerned, a promise that the arrangements shall be presently made on a somewhat different basis which will be more satisfactory. The prosperity of the Southern country as compared with Kansas and many portions of the West, where the crops and banks have failed and investment companies hung out signs of distress, is reassuring for those of us whose fortunes are cast with the former. We hope to convince the inquiring capitalist his money will be well placed in a country where crops are more varied and certain and whose timber and minerals are practically unlimited.

Cleveland.

THE W. BINGHAM COMPANY.—Business for the past two weeks among the Hardware jobbers here has been on the whole satisfactory. The disinclination of manufacturers to accept orders at the extremely low prices which were ruling on some lines during December and the early part of January has had rather a salutary effect upon the trade at large, and has given some backbone to a market which threatened at one time to go utterly to pieces. While the present demand is largely for seasonable goods, such as Wire Cloth, Screen Doors, Poultry Netting, Steel Goods, &c., the orders at the same time contain a good assortment of General Hardware. The retailers report a fair trade, with good prospects for the future. A visit to the offices of the architects shows a large amount of work in progress for completion this year, which if carried out will necessarily make a brisk demand for Builders' Hardware. It is a noticeable fact that the taste of builders is becoming elevated to a higher plane as regards the quality of goods required in this line. They find that a little attention shown to the artistic in the Hardware which is selected is quite as productive of satisfactory results as anything else that goes into the erection of a building, hence the growing demand for a better and more expensive line of goods of this kind. Collections are fair.

Portland, Ore.

FOSTER & ROBERTSON.—Trade for the month of January was very satisfactory, being about double the same month last year, and February so far has done very nicely. This state of affairs, as compared with last year, is not due so much to increased activity as to more favorable circumstances, such as nice weather and absence of flood, and it may be that the present activity will result in a much lighter trade during the months of March and April.

Prices remain stationary, and with the exception of a sharp decline of 20 cents per keg in the price of Nails, and a slight advance in the price of Gas Pipe, there have been no material changes.

Collections have improved somewhat, although there is still ample room for further improvement. The low price of wheat still prevailing "east of the mountains," causing farmers to hold for a rise, still continues the tightness in that portion of our territory, while west of the mountains the failure to get our usual rainfall renders it impossible to get the logs out and into market from along the small streams, thus causing a like stringency here.

In our letter of January 8, which appears in your issue of the 15th, we made the following statement:

Reports from the Sound country state that trade is so dull that the line of steamers that has for years plied between San Francisco and Sound ports is to be entirely withdrawn.

To this statement, made from material after the hasty reading of an article in the telegraphic columns of the *Daily Oregonian* of this city, our San Francisco friends take exception. After looking up more carefully the article which led to our statement, we gladly give space to the following extract from a letter written by Geo. A. Cragin, Coast representative of

the Washburn-Moen Mfg. Company, at San Francisco, under date of February 5:

That business is at present dull is a fact which cannot be disputed, but the so-termed excessive dullness is due more to a comparison of the enormous business which was done between here and Puget Sound ports immediately, and for some time after the conflagrations at Seattle, Ellensburgh and Spokane Falls. We have been assured by those in a position to speak authoritatively that there is no thought of withdrawing even one of the three steamers now in service between this city and Puget Sound ports, much less of withdrawing the entire line of steamers.

Philadelphia.

SUPPLEE HARDWARE COMPANY —There has been a perceptible improvement in trade circles since our last letter. The volume of trade at present is of fair proportion, and materially increased during the last two weeks. A healthy activity is noticable as one enters the various mercantile houses. Prices rule exceedingly low, and the margin of profits realized in making sales is small. The growing competition throughout the entire country has reached such vast proportions as to compel the successful jobber to enter the field early in the season, when he may find manufacturers willing to concede a small percentage below market rates in order to secure advance orders, thus not only keeping their men employed, but securing to them a guarantee of sales against any overproduction. The retail merchant thus realizes a corresponding advantage, as goods are now distributed by the eager seller at an infinitesimally small percentage above actual cost, secured through large and early purchases. Were it not for the fact that the large mercantile houses are thus willing to enter the field upon anticipated trade when the season was fairly opened, there would not only naturally be a scarcity in many lines of leading goods, but prices would (temporarily at least) rule higher as each season advances.

The manufacturers surrounding our city are working full force and full time, and report trade in a healthy condition. The yearly increase of population throughout our vast country, coupled with the fact of our being able to dispose of a certain amount of surplus of both farm products and merchandise to foreign countries each year, prevents any large amount of surplus accumulating, or being carried over from one season to another. The export trade from our port since the middle of January is in excess of 1890, and quite sufficient to load the steamers leaving direct for Queenstown, Glasgow and London with full cargoes. In this connection we were impressed with the information, direct from a reliable dealer in France, who desired some printed matter for distribution, in order to advertise certain goods for which we had booked an order, that for this printed matter or posters he was compelled to pay a direct tax to the French Government before making use of them, as follows: Posters 12½ x 16½ inches, an amount equal in American money to $10\frac{1}{10}$ cents; 16 x 24 inches, $2\frac{4}{10}$ cents; 24 x 33 inches, $3\frac{4}{10}$ cents, each, before he was permitted to scatter or display them.

Those who are familiar with the expense of maintaining a government through either direct taxation or judicious tariff regulation this will strike as being an enormous and almost a prohibitory business tax, yet in all foreign countries, especially where large standing armies are maintained, the burden of direct taxation is naturally much greater than in our own country, but the large emigration of 500,000 each year flock to this country, are soon lost in the maze of employed mechanics, miners, railroad men or agriculturalists, depending largely from what locality they arrive, a comparative few coming from France, which country, under the present form of government, has as a rule a contented and thrifty population, but taxation must be great to enable a country in 20 years to raise an indemnity fund of an imperial fortune, and yet be able to invest millions in the Panama Canal scheme, and still have more "gold reserve" than any other foreign country in her vaults, and on call be able to assist the Bank of England to tide over the Baring Brothers' embarrassment, which otherwise might have proved a disastrous panic.

The strike in the Connellsville coke region, compelling iron producers in some instances to close their furnaces, will naturally affect trade locally in that region. Outside of that locality however, there remains an encouraging outlook. Prices remain without any noticeable change. The tendency in some lines, especially Wire Nails, Barbed Wire and Strap and T Hinges, is to stiffening above the ridiculously small percentage over carload cost at which the jobbers have been selling.

Collections during the past two weeks may be looked upon as only fair. The banks continue a liberal policy of discounting their customers' mercantile short-time paper, showing no disposition to encourage customers longer time than 60 days paper, believing that this should be sufficient to tide the trade over the balance of the winter months.

St. Paul.

FARWELL, OZMUN, KIRK & CO.—Trade as a whole, and Hardware in particular, in the twin cities since the commencement of the new year has been very much larger than in any previous year in their history in the same period, owing no doubt to the exceptionally fine weather that has prevailed and the naturally increased demand for goods from the country tributary to these markets.

Collections are good and accounts in better shape than for some time. Money is easy at the banks here, and rates of discount East have been materially reduced.

The withdrawal of carload rate on mixed cars of Wire and Nails by the roads entering these cities, to take effect March 1, is a move in the right direction, as it will have a tendency to prevent overbuying on the part of small dealers and the strengthening of prices on these goods.

The country, with a few exceptions, seems to be in a prosperous condition in this section, and we anticipate increased sales this year and a good business.

San Francisco.

HUNTINGTON – HOPKINS COMPANY. — There has been no material change since our last report. We have not yet had the rain that we referred to, at that time, as being really necessary for the welfare of the country While trade is easing off somewhat, it will be worse unless there is a decided change in the situation. Collections are still very slow, and as advised you in a former report, will be in this shape until the money which has been tied up in taxes has been released; this state of things makes our report necessarily brief.

Omaha.

LEE-CLARKE - ANDREESEN HARDWARE COMPANY.—The condition of trade continues substantially the same as indicated in our former report. The volume of business, though moderate, as expected just at this season of the year, is well sustained, and promises to increase as the season advances. A notable feature is the absence of disturbing elements. It is conceded that prices have just about touched bottom. The feeling of uncertainty produced by the recent financial flurry has passed away, and a good, old fashioned steady spring trade is now expected, devoid of any boom or inflation of values. Both the farming and mining interests of this territory appear to be in a flourishing condition, and we hear of no drawbacks from any source. City business is quiet for the moment. New and extensive public works are in contemplation, while the architects report a large number of costly residences with others of less pretensions being planned for early development. Collections may be reported as fairly satisfactory.

Boston.

BIGELOW & DOWSE.—It is too early yet to expect much activity among the retailers, and the past two weeks show few changes either in prices or in an increased volume of business. Stocks are much lighter this year than last, as but few goods have been bought in a speculative way. Liberal orders are now being placed with the manufacturers, and many of the goods are wanted at once, as the prospects are favorable for an early demand. All the manufacturers are holding firmly to the advanced prices on Farming Tools, and the retail dealers are not placing their orders as early as in former years, and still there seems no disposition on the part of jobbers to cut prices to secure these orders. Later on there will be a good trade for this line of goods, and it is hoped at a more remunerative profit than in the past. There is an increased demand for Steel Cut Nails. The difference of 50 cents as compared with the cost of Wire overcomes the prejudice in favor of the latter. Another important factor in favor of the Steel Nails is that they are cut much lighter than formerly, so there is but a trifling difference now in the number of Nails to the pound, for while the

Wire Nail manufacturers have increased the size of wire used, the Steel Nail manufacturers have reduced theirs.

Notes on Prices.

Cut Nails.—Since our last report there has been no material change in the condition of the market, and quotations remain on the same basis as before. The demand has been fair, but not especially heavy. Manufacturers are pursuing a conservative course and showing a disposition to maintain prices. Round lots at mill are quoted at $1.60 with 30 or 35 cent average, concessions being made in only exceptional cases. The price in this city is $1.75 to $1.80, f o.b. New York, for Iron or Steel Nails in carload lots. Small parcels from store are held at $1.85 to $1.90 for Iron, with the usual advance for Steel.

Chicago, by Telegraph.—Steel Cut Nails are still in fair demand, but sales of factory lots have been concentrated in few hands of late. The usual quotation is $1.60, Wheeling, for a 30-cent average, but special rates are made, according to the character of the order. Jobbers quote $1.85 for small lots and $1.80 for carloads.

Wire Nails.—The mills are, with scarcely an exception, fully occupied on orders, and are maintaining prices firmly on a basis of $2.15 for carload lots at factory, but some manufacturers refuse to sell at this figure. Small lots from store are held at $2.45 to $2.50.

Chicago, by Telegraph.—Manufacturers' agents report a much smaller business in Wire Nails, which they quote from factory at $2.25 to $2.30, Chicago. Jobbers note a good demand, but are not now doing a rushing business at $2.35 for small lots and $2.30 for carloads.

Barb Wire.—Although the demand is sluggish prices are well maintained, and the market, in view of the understanding between the manufacturers, has rather a firm tone. Quotations are on a basis of 3.10 to 3.15 cents at mill for Galvanized Four Point in round lots. Small parcels from store in New York are quoted at 3.35 to 3.45 cents for Galvanized, Painted being ½ cent per pound lower.

Chicago, by Telegraph.—The manufacturers are still very busy with old contracts, but are not getting much new business. They will hold another meeting here this week, which may have some bearing on prices. Mill lots are now quoted at 2.65 cents, Chicago, for Painted, and 3.15 cents for Galvanized. Jobbers ask 2.75 cents for small lots of Painted and 3.30 cents for Galvanized, with 5 cents off for carloads.

Ammunition.—There have been no important developments in this line since our last report. There is apparently among the larger trade some diversity of opinion as to the desirability of the action taken by the association in relieving their contract houses of the obligation to maintain selling prices. While there can be little doubt that the restraint in this regard resulted in giving to the trade generally a better profit on the goods than they would have otherwise obtained, many of the larger houses are disposed to regard the removal of the restriction as advantageous, giving them a liberty in making prices which they have not for some time enjoyed. It is, however, generally conceded by those best informed that in view of the varied reasons which led to this action by the association, the course adopted was a wise one, although it leaves the trade for the time being in a state of uncertainty as to further developments. It is, however, generally thought that the present status is only temporary, and that as soon as the association can mature their plans other arrangements will be announced for the protection of the large houses and the securing of something like regularity in the prices of the goods.

Strap and T Hinges.—The negotiations which have been in progress for some time between the manufacturers of Strap and T Hinges have resulted in the formation of the Strap and T-Hinge Association, which consists of the following concerns:

STANLEY WORKS,
MCKINLEY MFG. CO.,
E. W. GILMORE & CO.,
LINDSAY & MCCUTCHEON,
C. HAGER & SONS HINGE CO.

Roy & Co. are not members of the association. A new list, which is printed in a separate table on another page, has been adopted. The inequalities in the list for these goods have long been recognized and have been the source of considerable annoyance, especially when prices were unprofitably low. The new list corrects these inequalities, and is regarded as fairly representing the basis of cost at this time. The revised list is subject to a discount of 50 and 10 per cent. The new prices represent an advance on the goods generally ranging from 5 to 10 per cent. on Strap Hinges and something like 20 per cent. on T Hinges.

Tinsmiths' Machines.—The following are the list prices of Stow's New 1892 Columbian Tinsmiths' Machines manufactured by the Peck, Stow and Wilcox Company, 27 Chambers street, New York, and illustrated among the new goods on another page:

Wiring Machine	$13.00
Setting-Down Machine	9.75
Large Turner	10.75
Small Turner	10.50
Large Burr	10.00
Small Burr	9.50

Miscellaneous.—The following are the list prices of Tanner's Adjustable Bolster Spring (unmounted), manufactured by D. F. Tanner, Holland, N. Y., the list being subject to a discount of 40 per cent.:

No. 1,	1,000	$4.50
No. 2,	2,000	5.00
No. 3,	3,000	6.00
No. 4,	4,000	7.00
No. 6,	6,000	9.00
No. 8,	8,000	12.00
No. 10,	10,000	18.00

A description of this Spring was given in our last issue.

Cheney & Tower Machine Company, Athol, Mass., quote their new patent Stair Gauge, a description of which was given in our last issue, at the following prices, which are subject to a discount of 25 per cent.:

18 inch Stair Gauge, per dozen	$6.00
28-inch Stair Gauge, per dozen	9.00

They quote the Cheney Lawn Mower at the following prices, subject to a discount of 25 per cent.: 12 inch, $10; 14 inch, $12. Their All Steel Adjustable Fork Wrench is quoted at the following prices: No. 1, opening to ⅝ inch, per dozen, $5, subject to a discount of 15 per cent.; No. 2, opening to 1¼ inch, per dozen, $6, subject to a discount of 10 per cent.; No. 3, opening to 2 inch, per dozen, $8, subject to a discount of 5 per cent.

American Pocket Cutlery.

WE NOTE with pleasure that the Pocket Cutlery manufacturers throughout the United States are busy on orders; that many have found it necessary to enlarge their plants, and that increase in wages is quite general. Additions have been made in several instances to the number of workmen employed. From one manufacturing concern we learn that they have added to their buildings room to accommodate about 15 more men, and, in addition, have added about 25 feet to their grinding room. Another reports that the demand for Pocket Cutlery is brisk and the business outlook very bright for 1891. They are constantly adding new facilities for a larger production and increasing their variety of patterns. In another instance the manufacturers have increased wages and reduced their selling expenses, leaving the margin of profit to them about the same, but benefiting the workmen. They state that they are unable to accept all orders offered them, owing to their inability to get the goods out in time to satisfy customers. The following letter from a prominent manufacturer of Pocket Cutlery will be of interest to our readers, as it touches upon many points of importance to the trade. He writes:

We have readjusted and advanced wages in the Pocket Cutlery department of our manufactory, resulting in an increase of 10 to 15 per cent. A similar course is being taken throughout the Pocket Knife manufactories of the country. The course is a just one—Pocket Knife workers having had a very hard time for six years past, and many workmen have changed to more remunerative employments. Manufacturers have been making a losing fight against the vast importations of German goods stamped and sold under American cover. But for recent tariff legislation this industry would in a few years have been completely destroyed in this country. The scattered workmen will now return and soon every plant in the country will be alive again. While American manufacturers, in their fight for existence, have sold goods regardless of cost in their endeavor to meet German goods with American and Sheffield brands, they have at no time deteriorated in quality—which in steel, temper and workmanship are unsurpassed. In the manufacture of good goods Americans have not made money, but have been uniformly successful in producing Pocket Knives of fine quality and temper. American goods will now have a wider field and the opportunity of being judged on their own merits rather than by the demerits of inferior foreign goods bearing American imprints. They will probably replace

Wostenholm and Roger's goods to a considerable extent, as no better goods are made in the world than Standard American Pocket Knives. There will be a little flurry of advanced prices for a time, many leaders will be withdrawn and dropped because of the ruinous prices that have recently prevailed, but ere long manufacturers will ascertain that they can secure the market for standard patterns, and doing that can pay fair wages, make more goods and do a safe business. Very soon the matter will settle itself in such a way that American consumers will be using a better article at as low a cost as they have been paying for inferior goods of foreign origin, but bearing an American name. There is no combination of manufacturers. Each one is seeking to eastablish a market price for American Pocket Knives—a price based on cost and quality—a condition that has not ruled for many years. The result will not seriously enhance prices—on many patterns not at all—on most of the lines probably 5 to 10 per cent. The long-suffering manufacturers and workmen and the consumers will be benefited—the margins of the middlemen may be reduced. There will be no boom in the business—no bonanza; cheap and worthless foreign goods as well as meritorious foreign goods will still come in; prices will soon adjust themselves fairly to all concerned. Various qualities will simply become better known and understood, and American goods at reasonable prices will doubtless secure a firm hold on the best American trade, replacing at lower prices the best foreign make. The consumer and manufacturer will eventually know each other better, much to the benefit of the consumer both as to price and quality. The new tariff will not allow manufacturers to advance their product materially. Manufacturers will not seek to do so. It is the market that is wanted; value and quality considered, prices will be moderately fair—will rule not higher than 1882, which is the latest date at which such a thing as market prices for American Pocket Knives existed. The business will probably have a safe and steady growth. Just now every American Pocket Cutlery manufacturer is busy on orders taken at prices made before the McKinley bill passed. Delighted to be once again busy, they are paying advanced prices to workmen, and when taking new orders will neither seek or secure advanced prices beyond the mark made necessary by advanced wages, and cost of good goods.

Trade Items.

THE COBURN TROLLEY TRACK MFG. COMPANY, Worcester, Mass., are introducing a modification of their Traveling Store Ladder, adapted to stores where the ledge under the shelving is allowed to extend out into the room to be used as a counter, or as a place to do up bundles on, &c. This Ladder extends from the floor up as far as the top of the ledge, including three or four steps. From this point it bends at an angle of 45° over the ledge, extending at this angle to the top of the shelving, at which point it is connected with the trolleys near the ceiling. Along the ledge, just above the upper row of drawers, are fastened tracks upon which the lower part of the ladder operates, while the upper part is carried by the trolleys. The Ladder is pushed from place to place as desired.

THE CHICAGO WIRE GOODS COMPANY, successors to the New Haven Wire Goods Company, have nearly completed their new plant at Aurora, Ill., and started a part of it in operation a few days since. The business formerly conducted at New Haven, Conn., has been completely transferred to Aurora, but the new factory is many times larger than the old one. The building is 216 x 34 feet, two stories high, with the center three stories high, and has two one-story additions each 32 x 32 feet, with a car house holding two cars The works are located on the Geneva branch of the Chicago, Burlington and Quincy Railroad, and have connections with the entire Chicago railroad system. The start was made with 130 hands, who will be employed full time. The main office of the company is at 23 Lake street, Chicago, and a New York branch house has been established at 93 John street. L. C. Smith is president of the company and W. H. Bradley is secretary and treasurer.

THE ORFORD COPPER COMPANY, smelters and refiners of copper ores, &c., whose works are at Constable Hook, N. J., and main office at 37 Wall street, New York, have appointed Francis Wister of Philadeladelphia agent for the sale of their products, some of which, it is claimed, are specially adapted to the requirements of brass founders. Tests of these specialties are being made and will be furnished to those interested on application to Mr. Wister.

THE ATTENTION of Hardware manufacturers is requested to the advertisement of "H. & R." on page 60. These gentlemen are well and favorably known to the trade, and are regarded as amply qualified to handle a line of goods such as they specify.

THE S. A. HAINES COMPANY, 90 Chambers street, New York, have been reappointed agents for the Bellefonte Iron and Nail Company, Bellefonte, Pa., and are prepared to quote Cut Nails at best market prices.

THE ADVERTISEMENT of Sickels, Sweet & Lyon, 35 Barclay street, New York, will be observed on another page. This enterprising and growing house are in the market as manufacturers' agents, importers and wholesale dealers of Hardware and Cutlery, and state that they handle goods of the leading makers, which they are in position to sell at factory prices.

J. B. WILLIAMS, who is well known to the trade, has connected himself to the firm of Surpless, Dunn & Alder, 97 Chambers street, New York, and will look after their trade in the same territory as covered by him for P. & F. Corbin during the past ten years.

WE ARE ADVISED by Franklin C. White, 102 Chambers street, New York, that he has been appointed agent by the following manufacturers: Chieftain Hay Rake Company, Canton, Ohio, Can Openers and Post-Hole Diggers; J. H. Hoague, Chicopee, Mass., Tracing Wheels, Automatic Drills, Bit Braces, Tool Sets and Hand Vises; and the Rhode Island Novelty Works, Providence, R. I., Silver-Lined Champagne Taps, Alcohol Lamps, Curling Irons, Cork Screws, Lemon Squeezers, &c.

IN THEIR ADVERTISEMENT on another page C. E. Jennings & Co., 79 and 81 Reade street, New York, call attention to their line of American Ice Chisels and Star Lemon Squeezers, of which they are manufacturers.

ARCH. STEWART, CHARLES D. SMITH and C. A. BERGEN, under the firm name of Stewart, Smith & Bergen, have purchased of the assignee, W. S. Farley, Jr., the Hardware business formerly conducted by W. S. Farley & Bro., Fort Plain, N. Y. Mr. Stewart is now connected with Clark, Wood & Stewart, from which concern he will withdraw. Prior to this connection he had seven years' experience in the Hardware business of Williams & Beck. Messrs. Smith and Bergen are also regarded as efficient business men, and the new firm will thus be launched under favorable auspices. An inventory of the stock is now being taken, and the firm will be ready for business in a week or two.

ANDERSON BOLT WORKS, Anderson, Ind., issue a circular calling attention to the fact that L. S. Taylor, formerly manager of the company, has organized and started a Bolt factory in that city with a name similar to theirs. They advise the trade that the two concerns are entirely different and that Mr. Taylor is not connected with their establishment.

OUR READERS will observe the Special Notice on another page in which Haydock & Bissell, 12 Murray street and 15 Park place, New York, announce a trade sale of Hardware, House-Furnishing Goods, Tinware, &c., on Wednesday and Thursday, February 25 and 26. Wednesday's sale will include a large line of Hammers, Hatchets, Files, Padlocks, Butts, &c., and on Thursday an extensive assortment of Curry Combs, Hay, Manure and Spading Forks, Rakes, Hoes, Shovels and Spades, as well as Brushes, Tinned and Enameled Ware, will be disposed of.

Price-Lists, Circulars, &c.

SALEM WIRE NAIL COMPANY, Salem, Ohio; Eastern office, 261 Broadway, New York, Geo. H. Ismon, sales agent: Wire Nails, Brads, Casing, Finishing, Clinch, Barrel, Hinge, Barbed Nails, &c., and Staples. The standard wire gauge of each length of Nails is given in connection with the usual tables of size, average number in a pound and advance over base price. This is considered a valuable addition to the tables, and renders the list of special interest. The line of goods shown in it is very complete, and cuts are given showing the different kinds of Nails.

THE NEVERSLIP HORSESHOE COMPANY, Boston, Mass.: Neverslip Cork Horseshoe Pad, Nail Head Nippers and Hoof Trimmers. These Pads are made of a cork compound, and are referred to as light, elastic and durable. The Pad is open so that the sole of the horse's foot is exposed to air and moisture, which is intended to prevent heating, while a cushion is provided for the horse's frog in the proper place. Pads are to be used with plain, open shoes, and it is stated that they will wear, on an average, from six to eight weeks, and can be reset when necessary.

JOSEPH W. WAYNE, Cincinnati, Ohio: Superior Ice Chests for saloons, steamboat bars, grocers, &c. These goods are made in imitation of black walnut, cherry or mahogany, with beveled mirrors and receptacles for kegs of beer, bottled goods, cold meats, &c.

BAKER GUN AND FORGING COMPANY, Batavia, N. Y.: Fifth Wheels and the Baker Gun. The new Baker Gun is described as having the best English steel twist barrels, extension rib, checkered pistol grip. English walnut stock, rubber butt-plate, low circular hammers, solid strikers, rebounding locks, top snap action, interchangeable parts; choke bored, unless otherwise ordered; compensating fore end to take up the wear in the hinge and prevent the Gun from becoming loose. The lock consists of but four pieces. These Guns are made 10 and 12 bore only.

DILLE & MCGUIRE MFG. COMPANY, Richmond, Ind.: S. A. Haines Co., agents, 90 Chambers street, New York. Lawn Mowers, Lawn Trimmers, Wire Cloth Holder, Measurer and Cutting Machine, also Grinding Paste for Lawn Mowers.

RACINE REFRIGERATOR COMPANY, Racine, Wis.: Refrigerators, Grocers' Coolers, Ice Chests, &c. The manufacturers claim that the air in the provision chamber is absolutely dry, because it has a large amount of condensing surface; that they use one-third less ice, because warm air condenses on patent metal plates, instead of directly on the ice; that no charcoal or sawdust is used in filling, reducing the

weight 15 to 25 per cent., and that the walls are thoroughly protected by air spaces lined with a non-conducting substance used only by them. The point is made that they have entirely original and elegant designs of carving, resulting in a Refrigerator pleasing to look upon, avoiding anything like a cheap appearance.

CHAS. E. SNOW, Rochester, N. Y.: Brass and Wire Railings, Grilles, Guards, Ornamental Wire Work and Wire Goods, Galvanized Wire Cloth for Fruit Evaporators and Galvanized Steel Mats. These Mats are referred to as light and strong, pliable and not liable to break; they are galvanized after being made.

THE STANDARD LIGHTING COMPANY, Cleveland, Ohio: Globe Incandescent Oil Lamp, Vase and Banquet Styles, 135-Candle Power Lamps, New Process Vapor Stove, Vapor Burners, Street Lanterns, Torches, Plumbers' and Tinners' Furnaces, &c. The New Process Stove is referred to as being made without Packing, Swivel Joints, Levers, Stuffing Boxes, Lighting Cups, Pneumatic Pressure Devices, or other traps liable to give out and cause trouble.

MCCLURE & ELLIOTT, Detroit, Mich.: Architectural Wire and Iron Work, Iron and Wire Fencing, Fire Escapes and Builders' Iron Work, Stairs, Shutters, &c.; Special Iron. Wire and Brass Work, made from sketches and drawings; Railings, Wickets, Elevator Inclosures. Boat Work, Wire Signs, Window Guards, Cresting and Finials, Stable Fixtures, &c.

THE WHITMAN & BARNES MFG. COMPANY, Philadelphia, Pa.: The Grass Widow Lawn Mower, Hay Fork Pullies, Harpoon Forks, Hay Carriers, Pulley Hooks, Hanging Hooks, &c.

MORSE TWIST DRILL AND MACHINE COMPANY, New Bedford, Mass.: Morse Patent Straight-Lip Increase Twist Drills, and the Beach Patent Self-Centering and Self-Tightening Drill Chucks, Solid and Shell Reamers, Patent Drill-Grinding Machinery, Center Drill Chucks, Milling Cutters, External and Internal Standard Gauges and Special Tools.

WILSON BOHANNAN, Brooklyn, N. Y.: Bronze Metal Spring Padlocks, Combination, Drawer, Combination Chest, Key Drawer and Chest, Locks, Tubular Rim Night and Mortise Night Latches, Upright Rim Store Door and Mortise Store Door Locks, Key Blanks, &c. Attention is called to the fact that all of his Locks are hand-made, and that all of his Padlocks and Drawer Locks are cast of the best bronze metal, also the interior of all his Iron Case Locks.

LOWELL SCALE COMPANY, Lowell, Mass.: 600 and 1000 pound Scales. These are described as having an all iron platform, brass sliding poise, cast steel and hardened bearings throughout, self-adjusting bearings, hard wood pillar and cap, finished in the natural wood or painted, as desired. Excellence of construction, accuracy and durability are three things claimed by the manufacturers for these Scales.

THE U. S. CLOTHES PIN COMPANY, Montpelier, Vt.: A circular illustrating the U. S. Clothes Pin and giving a number of reasons why the Pin is desirable. The manufacturers refer to its construction and the materials used as being especially adapted for the purpose for which they are intended.

SHULTZ BELTING COMPANY, St. Louis, Mo: Shultz Patent Woven Leather Belt, Shultz Patent Leather Pulley Covering, Rawhide Lace Leather, Picker Leather, &c. Attention is directed to their Pulley Covers and Valves, especially adapted to Blast Furnaces.

THOS. H. CHUBB, Post Mills, Vt.: Retail Catalogue for 1891 of Fishing Rods and Anglers' Supplies. The last 48 pages of the catalogue are devoted to Angling Papers, a collection of interesting stories of fishing experience, most of which are illustrated. This portion of the book also contains handsomely colored plates of Black Bass Flies; Black Bass Flies, Extra Fine; Lake Trout Flies, Reversed Wing Trout Flies, Floating Flies and Common Flies, and Insects with Scale Wings. The book is attractive, and will doubtless receive a warm welcome at the hands of anglers.

WINFIELD MFG. COMPANY, Warren, Ohio: Good Enough, and Standard Tubular Lanterns, Sun Light and Wide Awake Wall and Hand Lamps, Good Enough, Banner and Home Rule Family Oil Cans, &c. They also manufacture the Anchor Sap Spout.

SWEET & CLARK COMPANY, Marion, Ind.: Refined Air Furnace Malleable Iron and Hardware specialties. Curry Combs, Curry and Horse Cards, Boring Machines, Malleable Iron Cooley Whip Racks, Patent Door Fasteners, Fast Shackle Scandinavian Padlocks, Garden Trowels, &c.

WHITMAN & BARNES MFG. COMPANY, Cincinnati, Ohio: Agricultural Supplies, Mower and Harvester Supplies, Plows, Plow Repairs, Single Trees, Double Trees, Cultivators and Cultivator Supplies, Haying Tools, Lawn Mowers, Hay Rake Teeth, Thresher Supplies, Binder Twine and Wire, Canvas Covers, Corn and Grain Drill Supplies, Hardware Specialties, Rope, Garden and Field Tools.

ENERGY MFG. COMPANY, Philadelphia, Pa.: Patent Portable Rope Hoisting Machines, Elevator Gearing, Dumb Waiter Gearing, Hatchway Hoists, Outrigger Hoists, Friction-Driven Center Grinders, Adjustable Clamping Blocks, Screw Blocks, Drill Guide and Steady Rest, &c.

GRISWOLD BROS., Troy, N. Y.: Wire, Bale Ties, Nails, Staples, &c. The above firm are represented in Chicago by G. S. Blakeslee & Co., 1549 Wabash avenue. The manufacturers state that their Ties are guaranteed, as they are all tested before leaving the factory, and that orders forwarded to Troy or Chicago will be promptly filled, as large stocks are carried in both places.

WEIR PLOW COMPANY, Monmouth, Ill.: Plows, Cultivators, Harrows, Pumps, Wheel and Drag Scrapers. Three-Wheeled Riding, Tonage, Single and Gang Plows, Walking, Wheeled Single and Gang Plows, Three-Wheeled Riding Tongue Plows, Sulky Plows, Chilled Plows, Single and Combined Listers, Shovel Plows, Cotton Planters, Five-Tooth Cultivators, Stalk Cutters, &c.

GRAND RAPIDS REFRIGERATOR COMPANY, Grand Rapids, Mich.: Leonard's Cleanable Refrigerators, Buffet Refrigerators, Mammoth Refrigerators, Cooling Rooms, Hardwood Ice Chests, Cleanable Water Creamers, Lightning Spring Churns and Portable Storm Houses. Attention is directed to the plans and instructions for building ice houses. They also give a complete telegraph code relating to their various Refrigerators by number. This company now have a large stock of Refrigerators on hand ready for shipment, including a number of new patterns. The list prices have also, we are advised, been reduced.

THE DROP HAMMER FORGING COMPANY, East Akron, Ohio: Drop Forgings and Cold Chisels. There are two grades of these Chisels manufactured, one a common Chisel and the other a Chisel made from the best Tool Steel, designed for any class of work.

EAGLE ANVIL WORKS, Trenton, N. J.: Blacksmiths' and Horseshoers' Anvils. The manufacturers describe the Anvil face as made from the best cast steel in one piece, smooth, true and not settling out of shape. It is stated that the Anvil body is of unyielding crystallized iron, being so solid that it will not bounce the hammer back, and that edges are double thickness of steel and will not crumble with ordinary care.

THE VANDERGRIFT MFG. COMPANY, Jamestown, N. Y.: New Improved Western Washer, American Hand Seed Planter and Self-Weighing Shot Case. The Washer is referred to by the manufacturers as having these merits: That it closes tight, preventing the escape of steam, retains the heat in the water for a long time, and is light running and especially valuable for all heavy or very dirty clothes.

STEEL EDGE STAMPING AND RETINNING COMPANY, Boston: Improved Dover Egg Beaters, Intelligent Oil Cans and Steel-Edge Dust Pans. The manufacturers claim for the Intelligent Oil Can that it not only notifies while the oil is running, but stops automatically when the Lamp is filled, and that it can be used as well with opaque founts or in the dark, as it notifies the user when the fount is full.

BUFFALO HAMMER COMPANY, Buffalo, N.Y. Solid Steel Tools, Hammers, Hatchets, Mauls, Wedges, Track Chisels, Hot and Cold Chisels, Swedges, Fullers, Punches, Hardies, Creasers, Set Hammers, &c. They have made additions to their line of goods embracing Farrier, Machinist, Plow, Double-Face Engineer, Adze-Eye Bricklayer, and Boiler Makers' Hammers. Several patterns of Sledges, Wedges, Mauls, &c., not before illustrated, are shown in their 1891 catalogue. They have also made some changes in numbering their goods, which they deem of value as more fully describing their goods.

RECTOR & WILHELMY COMPANY, Omaha, Neb.: Price current for February. Tin Plate, Metals, Curry Combs, Clevisis, Shovels, Post Hole Diggers, Clean Clipper Lawn Mowers, Vises, Screen Doors and Windows, Wickwire Bros'. Wire Cloth, Cream Freezers, Jackson Steel Goods, Refrigerators, Fishing Tackle, &c.

LEE-CLARKE-ADREESEN HARDWARE COMPANY, Omaha, Neb.: 1891 price current of spring goods of over 30 pages, illustrated. They show Ashtabula Diamond Steel Goods, Wickwire Bros'. Wire Cloth, Kilmer Adjustable Bale Tie, Eclipse and Buckeye Lawn Mowers, Pruners, Post Hole Diggers, Wrenches, Vises, Neckyokes, Clevises, Curry Combs, Oilers, Creamery Supplies, Boys' Wagons, Wheelbarrows, Screen Doors, Refrigerators, Cream Freezers, Guns, Sporting Goods, &c.

MACKINAW REFRIGERATOR COMPANY, 106 Chambers street, New York: Mackinaw and Ideal Refrigerators. The Mackinaw is described as having solid inside walls, one inclosed in the other, the interior one being made of inodorous dovetailed and matched tulip Poplar, zinc lined. The space between the walls, after applying a lining of specially-prepared material, which is referred to as the best non-conducting substance yet discovered, is compactly filled with pure charcoal. These goods are cabinet finish, solid ash, carved and ornamented, triple walled, charcoal filled and metal lined, making five walls. They have bronze metal air-tight locks, and are made in Ice Chests, Refrigerators, Beer and Ale Coolers, Sideboards, Buffet and Florist Refrigerators and Refrigerator Rooms. The Ideal Refrigerators are of soft wood, grained to imitate oak or walnut. The manufacturers state that these have been still further improved this season in strength, durability and preserving qualities. The Refrigerators are made of thoroughly-seasoned wood, with double lids, and the inner doors and lids are rabbetted. They are lined with heavy zinc, and the ice chamber is further protected with a galvanized iron bottom. The Ideal is shown in Refrigerators, Ice Chests, Grocers' Refrigerators with sliding covers, and Cigar Storage Cases, with water drawer in the bottom. A price-list and telegraph code are combined on the last page of the catalogue.

TREMONT AGRICULTURAL WORKS, Tremont, Ohio: Lehr Combined Riding, Walking and Special Walking Sulky Cultivators, small Horse Powers and Jacks, Hand and Power Feed Cutters, Cultivators, Plows, Double Shovel Plows, Corn Shellers, Post Augers, Farm or Feed Boilers, &c.

Nail Cards.

A MINNESOTA HARDWAREMAN, writing upon the question of Nail cards, refers approvingly to the Nail schedule of the Norton Iron Works which recently appeared in these columns. In this card it will be remembered that Tenpenny Nails were made the basis, and our correspondent refers as follows to the desirability of this arrangement:

So accustomed by long usage to regard this as a price standard and so universally the maximum of quantity for the ordinary building operations is this size, that I have found the various changes a constant annoyance and confusion; and I am confident that I but voice the sentiment of a large portion of the retail trade in requesting all manufacturers to adopt a classification of both Cut and Wire Nails upon the 10d. basis. If larger Nails should be fairly sold at a less price, let the list be relatively lower for those sizes as higher for the smaller ones. To this end I ask the co-operative influence of the trade and the invaluable assistance of your columns.

Reports of Trade.

FROM A REPRESENTATIVE Hardwareman in Western Minnesota we have the following advices in regard to the present condition of business and the prospect for spring trade as affected by the outlook for crops, touching also upon other matters:

A good crop of wheat and a fair price for the same, oats, potatoes and other farm products, together with some, though smaller, advance in the price of live stock, has placed our farming community in much better financial condition than a year ago. A good deal of wheat is yet unsold. General business at present a little quiet, as a result of exceptionally mild weather. The prospect for spring building is excellent, the unalterable determination of our present Granger Legislature to force down the legal rate of interest to a point that will surely prevent foreign capital from coming, and in many cases cause that already here to be withdrawn, being the most serious apparent obstacle to a year of great and rapid development of the immense resources of our young State.

Wells & Nellegar Company, Chicago, Ill., in their price current, February 7, which covers a varied line of seasonable specialties, refer in the following terms to the condition of business and the outlook for trade:

It is very gratifying to us to be able to state that our trade during the past year shows an increase of about 20 per cent. without any apparent extra effort on our part, or additional expense, notwithstanding the fact that very much lower values are ruling now than were a year ago, showing conclusively that the very low prices and prompt manner in which we are executing the orders which you so kindly favor us with are meeting with the desired results. It has been several years since we have received such assurances from all parts of the West that the whole country seems to be in a prosperous condition, and that there is every probability that the demand for Hardware will equal the supply, which fact of itself will create a firm and advancing market, and we unhesitatingly say that the year will close with prices much higher than are now ruling.

It is Reported—

That J. P. Clare & Son contemplate going into the Hardware business at Hudson, Mass.

That the store of Samuel Lloyd, dealer in Hardware, Guns, Wagon and Agricultural Implements, Phœnixville, Pa., was recently damaged by fire.

That M. J. Cullinan, Bangor, Maine, will open a Hardware store in that city.

That Smith Brothers Hardware Company, Columbus, Ohio, have been incorporated, with a capital stock of $50,000. The following are the incorporators: Thomas F. Smith, John H. Smith, Willis C. Jaynes David E. Mooney and Charles S. Wachter. The company will conduct a general wholesale and retail Hardware business.

That Hoffman & Quinn is the title of a new Hardware firm at Madison, Ind.

That Warner Smith has embarked in the Hardware business at Northampton, Mass.

That Baker & Bissell, wholesale dealers in Hardware, Stoves and Tin, Sioux City, Iowa, were recently damaged by fire to the extent of $20,000.

That the Hardware firm of Wicker, Hendershot & Co., Geneseo, N. Y., will change hands about March 1, Mr. Johnson of Savannah, N. Y., succeeding James Wicker.

That L. B. Weller's Hardware store at Ligonier, Pa., was robbed on the 5th inst. of $50 worth of goods.

That M. E. Loveland, Hardware, Stoves, &c., Potsdam, N. Y., took possession of his new store on the 11th inst. It is a pleasant and commodious establishment.

That Hersey & Co.'s Hardware store at Greenfield, Mass., was burned on the 6th inst. The loss on stock was $8000, on building $3000. The origin of the fire is supposed to have been a defective chimney.

That the Hardware firm of White & Wilson, Newark, Ohio, has been dissolved, the former having sold his interest to J. D. Elliott, who in conjunction with Mr. Wilson will continue the business.

That W. C. Stone has bought the Hardware business formerly conducted by E. C. Stone, Franklin Falls, N. H.

That the store of Thomas H. Edwards, Pittston, Pa., dealer in Hardware, Stoves, &c., was recently destroyed by fire.

That Frank Dixon has completed his new Hardware store at Montgomery, Ind.

That Walker & Wilkinson, Hardware, Caledonia, N. Y., have been burned out. Loss, $2500; fully insured.

That the Hardware and Tinware store of Dennis Boyd, Upper Alton, Ill., was damaged by fire on the 4th inst. The loss is said to be $600, with light insurance.

That M. E. Abernethy & Co. have succeeded to the business formerly conducted by Thompson Brothers, dealers in Implements, Wagons, Pumps, &c., Lenox, Iowa.

That E. W. McFadden has bought F. M. Byers' interest in the Hardware firm of Drushlad & Byers, West Salem, Ohio.

That Scott & Phillips, Hardware, were burned out in a general fire at Morristown, N. Y., on the 13th inst.

That the new building of the Heckel Hardware Company, St. Louis, Mo., is handsome and well adapted to their business. The offices are on the first floor and are finished throughout in hard wood in modern style, presenting a very attractive appearance.

That Geo. S. Davis, who has been manager of Sporting Goods department of A. L. Burbank & Co., Worcester, Mass, has opened a store for himself for the sale of Sporting Goods, Cutlery, &c., in that city.

That Tanner & Co., Hardware merchants, of West First street, Oswego, N Y., suffered from a serious fire early in the morning of February 13. The firm had just put in two carloads of Tin, and their large stock of Tools and Cutlery was almost entirely ruined. Mr. Tanner was so well pleased with the work of the firemen that he made the force a present of $100. The insurance on the stock is estimated at $22,000.

That Thomas Curran, an experienced Hardwareman, has been secured by Barker, Rose & Gray of Elmira, N. Y., to fill the vacancy caused by the resignation of L. M. Millspaugh. Mr. Curran is referred to as a Hardwareman of large experience, having been connected with the trade in Elmira for 18 years—first with T. A. Stowell & Co., and afterward with Pratt & Co. Since the latter firm retired from business he has been with G. A. Gridley & Son.

That Samuel Franklin, Spencer, Ind., has disposed of his Hardware and Stove business to A. M. Sweet, who will continue it at the old stand.

That the Hardware store of Boomer & Co., Waukon, Iowa, was recently damaged by fire.

That O. S. Swenson has succeeded the firm of Swenson & Moe, Hardware dealers, Sioux Falls, S. D., Mr. Moe having retired from the business.

That John L. Kenworthy, who has kept a Hardware store for more than 50 years in Glens Falls, N. Y., is retiring from business

That James Stanton has succeeded Stanton & Schultz, dealers in Agricultural Implements, New Hampton, Iowa, Mr. Schultz having retired from the business.

That the Hardware firm of Morgan & Perkins, Penn Yan, N. Y., have dissolved, the latter retiring. The business will be continued by Mr. Morgan.

That J. R. Vaughn has purchased his partner's interest in the firm of Holmes & Vaughn, Agricultural Implements, Waterloo, Iowa, and will continue the business

That William Thomas has retired from the Hardware and Implement firm of Menely & Thomas, Rossville, Ill. The business will hereafter be conducted by Mr. Menely.

That H. A. Lyon's Gun store, at Sioux City, Iowa, was destroyed by fire on the 8th inst.

That the Hardware store of Frank Bradowsky, Medford, Wis., was partially consumed by fire on the 9th inst. The loss is comparatively light and fully covered by insurance.

That M. Reinhart & Sons, dealers in Hardware, Lincoln, Ill., are now occupying the new quarters recently erected for them. The new establishment is referred to as one of the finest in the State.

That the interest of W. L. Cooper in the Hardware business of Cooper & Burney, Little Falls, N. Y., has been purchased by James G. Burney, and the business will hereafter be conducted under the name of Burney Brothers.

That A. E. Kramer has purchased the interest of N. R. Kramer in the Hardware business of N. B. Kramer & Sons, Grand Rapids, Mich., and will continue at 218 Plainfield avenue, in that city.

That Mr. Burbank has opened a Hardware store at Milton, N. H.

That H. & E. Corbin have bought the Hardware store formerly conducted by Morse & Willis, Friendship, N. Y.

That John Hudson has purchased the interest of his partner in the Hardware firm of Hudson & Elliott, Grand Meadow, Minn., and will hereafter conduct the business under his own name.

That N. F. Kerns has bought Beuchler's Hardware establishment at Donnellson, Iowa.

That the Hardware firm of Tucker & Joint, Savona, N. Y., has been dissolved, the former partner retiring.

That W. F. Allen and J. W. Hale & Co., Paris, Texas, have consolidated their interests and will hereafter do business under the name of the Allen Hardware and Implement Company. The new firm have ample capital and will handle Hardware, Stoves, Tinware, Cutlery, China, Queensware, Glassware, Implements, &c.

Revised List of Strap and T Hinges, February 14, 1891.

Light Strap Hinges.

Inches	3	4	5	6	7	8	10	12	14	16
Per dozen pairs	$0.50	0.65	0.75	0.95	1.20	1.35	1.90	3.25	4.00	5.00

Heavy Strap Hinges.

Inches	4	5			6	8	10	12	14	16
Per dozen pairs	$0.80	1.00 cents per pound			7½	7	6½	6½	6½	6½

Light T Hinges.

Inches	3	4	5	6	8	10	12	14
Per dozen pairs	$0.60	0.65	0.75	0.90	1.10	1.40	2.10	3.00

Heavy T Hinges.

Inches	4	5	6	8	10	12	14	16	18
Per dozen pairs	$0.80	0.90	1.00	1.35	1.90	3.00	4.00	4.50	5.00

Extra Heavy T Hinges.

Inches	5			6	8	10	12	14	16
Per dozen pairs	$1.35	cents per pound		8	7½	7	7	7	7

Long Chest Hinges.

Inches	6	8	10	12
Per dozen Pairs	$0.90	1.10	1.40	1.75

Hinge Hasps.

Inches	3	4½	6	8	10	12
Per dozen pairs	$0.90	1.10	1.30	1.90	2.50	4.00

Crate Hasps (Single Swivel)..... 3 inch, $0.90 per dozen pairs
Crate Hinges..... 3 inch, .50 per dozen pairs

An Experiment in Cash Business.

TWO ENTERPRISING young men, one of them a practical tinner, started a Hardware, Tinware and Stove business in a very small Western town a year and a half ago, their trade being dependent upon the farming community. After a short time they decided to do a cash business and to draw custom from the surrounding country they marked the stock straight through at an advance of 25 per cent. above cost. They found, however, that the territory would not afford enough business to induce them to remain, and eventually they moved their stock to another town in the same State. This town was the county seat, with a population of 2000 people, the surrounding country being settled with a well-to-do class of farmers. The merchants of this town had been getting large profits on their sales, and for a new firm to come in with a well-assorted stock of Shelf Hardware, Tinware, Bolts, Nails, Rope, Cutlery, Carpenter's Tools, Steel Goods, &c., marked at an advance of only 25 per cent. above cost, naturally created some commotion. For example, their competitors sold wood Smoothing Planes at 80 cents each, while the new firm had the same Planes marked at 45 cents. The new firm used all diligence in advertising their C.O.D. plan of doing business, and exerted themselves to their fullest extent to make it a success. They found, however, that it was hard for people to change from the old habit of buying goods on credit. They came to the conclusion that a cash Hardware business might be successful where people had a regular, steady income, but that in a farming community it was not. As a result they disposed of their stock to other parties. It would appear that they were justified in their decision, viewing the matter from the standpoint of the following article on farmers' credits which appeared in an Eastern paper. It says:

"It is evident that the plethora of stores has increased competition to such a pitch that the farmer is practically master of the situation. As a consequence, he has encroached little by little, until he now enjoys a length of credit accorded to no other class of consumer. Farmers alone are carried for an entire year in the expectation that they will pay up after harvest, and if, when that period arrives, they have not sufficient money to meet their liabilities, they expect cheerfully to be carried another year, confident in the fact that if they find it inconvenient to pay their bills, it is out of the question to put pressure on them. In fact, they have become accustomed to being always a year behind in their payments, and the moment they do pay up for the past year, they start in to be carried over the next. If they have any surplus left they do not devote it to paying current liabilities, but seek to make money by some outside investment, secure in the fact that they can always get credit, and that if the next harvest prove a poor one and they cannot pay up, the burden of their living expenses will fall on the storekeeper and not on themselves."

But perhaps there are among our readers others whose experience in this respect has been more satisfactory. Long credits are one of the trials of Hardwaremen as well as other merchants in many parts of the country, and the trade would be interested in any hints as to how the difficulty may be successfully met.

Delays in Delivery.

A CORRESPONDENT continues this discussion in a recent issue of the London *Ironmonger*, to which we have already referred, by saying:

Making every fair allowance and excuse, it must be conceded that the customers who require speedy execution of orders for goods which have to be manufactured are frequently doomed to disappointment —indeed, so far as Hardware is concerned, the British maker is in many markets looked upon as the darkest of black sheep in respect of unpunctuality, and what is deemed to be discourtesy to his customers in times of emergency. In London, as in New York, it is a common experience for English agents when waiting on their friends with the sample parcels they have, after much urgent insistance and delay obtained from their principals, to find that foreign competitors have so far anticipated them as to have sent in the patterns, obtained the order and imported the goods, while Birmingham or Sheffield has been floundering slowly along in the initial stage. This I can personally vouch for, because I have been on both sides the hedge—of the sinners as well as among the sufferers.

While there may be exceptions, there is no doubt that those jobbers and manufacturers who make it a point to make prompt shipments of goods have and hold an advantage over those who are proverbially slow in this respect. It is not uncommon to hear retailers express themselves as willing to pay a little more for these goods if they can be assured of prompt shipment. Regarding the position in which this lack of promptness has placed the English manufacturers, the correspondent remarks:

It is not so much a question of unavoidable circumstances as a lack of good management, discipline, or intelligent co-operation of master and men which places us below Germany and the United States in punctuality and dispatch. We are therefore in merited disgrace until we mend our manners in this respect; nor can it be doubted that the consequent material loss to us will continue and increase so long as we shamelessly allow our rivals to beat us, just because we lack the resolution and patience to overcome the extra trouble and inconvenience which pressing demands out of the usual routine generally imply.

Apparently the correspondent thinks it a case of the business pushing the manufacturer, instead of the manufacturer pushing his business. From the following we judge that he considers "old fogyism" responsible for this loss of prestige in the modern commercial world:

I shall attempt no excuse for the characteristic ingrained conservatism of habit which renders deviation from ordinary routine so distasteful to British artisans and their employers. It is this survival from a pretelegraphic and less-hurried period which should be eradicated, as totally behind the times.

The retailer or jobber should not, however, place the entire responsibility of the delays in delivery of goods upon the manufacturer or the manufacturer's agent. Merchants often buy small and insufficient assortments of season goods as the extent of demand for them is uncertain. Should the season prove such that a quantity of these goods are demanded, the merchant feels hurt if his duplicate order is not promptly filled. The manufacturer attempts to protect both himself and the merchant by soliciting orders for season goods long in advance of the time they will be in demand, and upon the orders thus received he largely bases his calculations as to his output. It is fair to consider, then, that a hand-to-mouth policy of buying is in many cases a prominent

cause of delays in having orders filled. When this is the case the retailer must be willing to bear his share of the responsibility.

Trade Topics.

IN DISCUSSING the question of a "trust" among the stove concerns of the country an official of a prominent Western company is reported to have expressed the following views:

There are to-day 354 stove factories in the United States. Competition has become so close that the business cannot be conducted succesfully except on a large scale. Here, for instance, is a large factory, like one of the three in Detroit, that gets up a set of patterns for a new line of stoves. The patterns cost $10,000. We sell, say, 10,000 stoves of this pattern, which makes the cost of the patterns $1 each A small concern without a reputation makes a similar line of patterns at the same cost, and is fortunate if it sells 1000 stoves, which makes the cost $10 on each stove for the patterns—an advantage of $9 in favor of the large factory. These small factories manage to compete with us, though, when they are owned by a father and two or three sons, and maybe an uncle and a cousin, who are practical men in all branches of the business. The stoves they turn out will not have the finish, nor be made as well as in a large factory, but the actual cost is a good deal less, and not being under much expense, they can actually undersell the large factories.

We have an organization now—the Stove Manufacturers' Association—which includes in its membership nearly half the manufacturers in the United States, and, although at our annual meetings we agree on prices for certain lines of stoves, we are not obliged to abide by the agreement. There is also the Stove Manufacturers' Defensive Association, but the object of it is only to protect ourselves against strikes. I will be candid and admit that I can see features in a trust or combination that would be a benefit to the manufacturer as well as the purchaser, and an injury to no class. The history of nearly all of the great trusts like the Diamond Match Company and the Standard Oil Company, has been to not only reduce the cost of the products to the purchasers, but to greatly increase the profits of the producer. I cannot see why, with a combination of the stove companies, a better regulation of the trade could not be made by the manufacturers, and stoves sold much cheaper than at present.

There is an obstacle, though, that would make me hesitate long before allowing my stove interests to pass into the control of a monopoly, and that is the almost uniform attitude of the State courts in all sections of the country toward trusts. In every State, except New Jersey and Colorado, the highest courts at one time or another have declared against trusts. New Jersey seems to be a haven for trusts, for some of the largest in the country that have no interests of any account in the State are incorporated there. In New York Tammany Hall, in order to make political capital, started a war on the Sugar Trust, and, while not having succeeded so far in breaking it up, it has seriously impaired it. The Harvester Trust was knocked out only a few days ago by an Illinois court, and in many of the Western States opposition to trusts has been made a political issue. With this record before me I would, as I said, hesitate a long time before joining a stove .trust. I don't care to get into a box where I would be liable to find the courts hunting me, and probably mean a loss of thousands of dollars. In spite of the bright colors in trusts, I have concluded to keep out of them.

Time Table for the Mail Service Between New York, New Zealand and Australia, via San Francisco.

SUBJECT TO CHANGE.

Outward Route.					Homeward Route.				
Name of steamer.	Leave New York.	Leave *San Francisco.	Arrive at Auckland.	Arrive at Sydney.	Leave Sydney.	Leave Auckland.	Arrive at San Francisco.	Arrive at New York.	Name of steamer.
	1891.				1891.		1891.		
Alameda	Feb. 28	Mar. 7	Mar. 28	Apr. 2	Feb. 18	Feb. 23	Mar. 14	Mar. 21	Mariposa
Mariposa	Mar. 28	Apr. 4	Apr. 25	Apr. 30	Mar. 18	Mar. 23	Apr. 11	Apr. 18	Zealandia
Zealandia	Apr. 25	May 2	May 23	May 28	Apr. 15	Apr. 20	May 9	May 16	Alameda
Alameda	May 23	May 30	June 20	June 25	May 13	May 18	June 6	June 13	Mariposa
Mariposa	June 20	June 27	July 18	July 23	June 10	June 15	July 4	July 11	Zealandia
Zealandia	July 18	July 25	Aug. 15	Aug. 20	July 8	July 13	Aug. 1	Aug. 8	Alameda
Alameda	Aug. 15	Aug. 22	Sept. 12	Sept. 17	Aug. 5	Aug. 10	Aug. 29	Sept. 5	Mariposa
Mariposa	Sept. 12	Sept. 19	Oct. 10	Oct. 15	Sept. 2	Sept. 7	Sept. 26	Oct. 3	Zealandia
Zealandia	Oct. 10	Oct. 17	Nov. 7	Nov. 12	Sept. 30	Oct. 5	Oct. 24	Oct. 31	Alameda
Alameda	Nov. 7	Nov. 14	Dec. 5	Dec. 10	Oct. 28	Nov. 2	Nov. 21	Nov. 28	Mariposa
Mariposa	Dec. 5	Dec. 12	1892. Jan. 2	Jan. 7	Nov. 25	Nov. 30	Dec. 19	Dec. 26	Zealandia
Zealandia	1892. Jan. 2	1892. Jan. 9	Jan. 30	Feb. 4	Dec. 23	Dec. 23	1892. Jan. 16	Jan. 23	Alemeda

* Or immediately after arrival of London mail at San Francisco.

Mails close at New York at 7 p. m.
Letter postage to New Zealand, New South Wales, Queensland and Victoria, 12 cents per ½ ounce; South Australia, 5 cents; Newspapers, 2 cents each paper.
Mail time between Sydney and Melbourne, 30 hours. Adelaide, 60 hours.
Letters by this route should be marked, "Via San Francisco."
Should present express time between New York and San Francisco be maintained, mails will be received in New York one day or so earlier.

Exports.

PER SHIP GOVERNOR WILMOT, FEBRUARY 3, 1891, FOR MELBOURNE, AUSTRALIA.

By Meriden Britannia Company.—4 packages Plated Ware.

By W. K. Freeman.—4745 pounds Handled Axes and Hatchets.

By McLean Bros. & Rigg.—150 dozen Drills, 4 dozen Emery Wheels, 300 dozen Axe Handles.

By R. W. Cameron & Co.—108 feet Leather Belting, 286 pounds Glue, 622 pounds Axles.

By Arnold, Cheney & Co.—4000 pounds Wire.

By R. W. Forbes & Son.—91 Air Guns, &c., 32 rolls Garnet Paper, 60 Axles, 560 pounds Nails, 14 packages Hardware, 2 Registers, 100 dozen Lamp Ware, 3000 Carriage Bolts, 2 Tricycles, 16 packages Lamp Ware, 2 cases Stamped Ware, 6 dozen Bench Screws, 20 packages Hardware, 4 cases Granite Ware.

By R. H. Dana & Co.—3 cases Scoops, 37 cases Axes, 10 dozen Spades, 100 reels Barb Wire, 9 dozen Scythes, 2 cases Bolts, 3 cases Wrenches, 2 cases Hardware, 1 case Soldering Coppers, 21 dozen Axes, 3 cases Bolts, 1 dozen Hay Knives, 3 cases Hardware, 1 crate Hardware, 5 cases Axles, 6 cases Scales.

By H. W. Peabody & Co.—3 barrels Castings, 150 cases Edge Tools, 20 cases Wire Stretchers, 3 cases Iron Castings, 1 package Hardware, 4 dozen Hoes, 8 cases Hardware, 22,400 pounds Barb Wire, 32 cases Edge Tools, 2 cases Castings, 1 case Lamp Goods.

By W. H. Crossman & Bro.—30 dozen Broilers, 6 gross Polish, 10 dozen Wringers, 6 dozen Knives, 20 dozen Drills, 10,000 Cartridges, 8½ dozen Wrenches, 7 cases Lamp Goods, 2 dozen Strainers, 220 pounds Tacks, 4 dozen Scales, 8 cases Hardware, 12 rolls Wire Cloth, 12 dozen Picture Wire, 1 gross Saws, 1400 pounds Nails, 5 casks Lamp Goods, 4 packages Hardware, 42 dozen Butts, 2 cases Tools, 1 gross Mop Holders, 2 cases Pump Parts, 3 packages Plated Ware, 1 case Hardware, 7 packages Hardware, 11 boxes and 1 case Hardware, 2 gross Traps, ½ gross Graters, 2 cases Hardware, 9 dozen Bells, 8 packages Pump Parts, 1 box and 1 case Hardware, 6 dozen Glass Cutters, 8 cases Hardware.

PER SCHOONER NEWBURGH, FEBRUARY 10, 1891, FOR PORT NATAL, SOUTH AFRICA.

By Marcial & Co.—14 Shellers.

By Corner Bros. & Co.—79 cases Agricultural Implements, 13 cases Hardware, 14 dozen Tools.

By W. H. Crossman & Bro.—13 cases Sash Weights, 2 barrels Sash Cord, 1 case Hardware, 26 cases Agricultural Implements, ½ dozen Washing Machines, 12 dozen Hardware, 1 crate Ladders, 1 dozen Churns, 7500 pounds Barb Wire, 1700 pounds Nails, 6 Scales, 31 cases Hardware, 1280 feet Rubber Hose, 107 cases Agricultural Implements, 35 cases Hardware, 6 dozen Ladders, 3 dozen Bird Cages, 1200 pounds Nails, 3 cases Stone, 5000 pounds Nails, 15 pairs Axles, 6 crates Ladders, 114 cases Agricultural Implements, 200,000 pounds Barb Wire, 3 packages Hardware.

By H. W. Peabody & Co.—2 dozen Wire Goods, 5 cases and 13 packages Hardware, 1400 pounds Nails, 3 Washing Machines, 2 dozen Egg Beaters, 18 Shellers, 12 cases Agricultural Implements.

FOR DELAGOA BAY.

By W. H. Crossman & Bro.—1100 pounds Sash Weights, 2½ dozen Sash Cord, 5 dozen Hardware, 326 dozen Hardware, 20,000 pounds Barb Wire.

PER SHIP DAISY REED, FEBRUARY 11, 1891, FOR PORT ELIZABETH, SOUTH AFRICA.

By John A. Gifford.—32 packages Carriage Hardware.

By Corner Bros. & Co.—6 cases Agricultural Implements.

By Oelrichs & Co.—6 pairs Axles.

By H. W. Peabody & Co.—16 cases Picks, 1 case Hardware

By W. H. Crossman & Bro.—1 case Shellers, 15 crates Churns, 31 Scales, 22 dozen Hardware, 13,000 pounds Nails, 40 cases Hardware, 15 pairs Axles, 10 gross Polish, 3300 pounds Sash Weights, 1 bale Sash Cord, 3 Washing Machines, 240 cases Agricultural Implements and 101 bundles Parts, 6 cases Agricultural Implements, 2 packages Lawn Mowers, 6 cases Hardware, 24 dozen Rakes, 14 Scales, 6 Store Trucks, 53 cases Agricultural Implements, 11 Washing Machines, 1 case Carriage Hardware.

By Coombs, Crosby & Eddy.—180 dozen Hardware, 40 dozen Tools, 1 dozen Agricultural Forks, 1 dozen Balances, 3 dozen Meat Choppers, 109 pounds Tacks, 28 Plows, 19 dozen Tools, 1 Rope Reel, 4 Pumps, 8 Scales, 9 Ladders.

FOR EAST LONDON.

By Coombs, Crosby & Eddy.—18 Washing Machines, 25,000 pounds Barb Wire.

By W. H. Crossman & Bro.—33 cases Hardware, 38 cases Agricultural Implements and Parts, 12 cases Agricultural Implements and Parts.

Paints and Oils.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

There have been few changes in either line the past week, and no new conditions have developed that point to any radical variation in values in the immediate future. Crude products generally stand practically the same as they did a week ago, as regards both cost and statistical position, and little change can be found in the character of the demand for goods ready for the distributive markets. As usual, with the approach of the spring season, orders for various lines of Paints show a gradual increase in number, as do also those for some descriptions of Oils; but there is nothing out of the common in this movement up to the present time, nor any sign of speculative action.

Paints and Colors.

White Lead.—Orders for corroders' product have been coming in very steadily, and, besides the usual demand for small quantities there seems to be rather more call from the jobbing trade for round lots, on which the lowest card rates is made by the producers. Further improvement is also noted in the cheaper varieties of pigments more particularly for good mixtures of Lead and Zinc that are found serviceable for many purposes. At this early stage of the season no idea can be formed as to whether the mixtures are making further inroads upon the outlet for corroders' product, but the movement of Zinc is such as would indicate that the cheaper article is more than holding its own in various localities. Prices stand as they were a week ago all along the line.

Red Lead and Litharge.—The demand is running about as usual at this season of the year, showing slow improvement, and the "trust" prices prevail.

Zincs.—The movement of American Oxide has continued free, but there is still more or less complaint of deliveries of some of the particularly favored brands being rather backward. One prominent concern, it is learned, are making preparations to increase their output to the extent of about 50 %. Foreign brands are selling to a fair extent, but do not appear to fare relatively as well as the domestic article. Prices have undergone no change.

Colors.—In nearly all the more staple lines of Dry and Oil Colors adapted for house painters' use there has been a very good trade, and some improvement is noted also in sales of specialties. Grinders' Colors are in steady demand, and the movement of some descriptions has been rather larger than during the preceding week. On values there is little change to report. Quicksilver Vermilion is quoted by one or more outside manufacturers at about 2¢ under the association prices, but in this particular the situation is practically the same as it was last week.

The Paris Green Manufacturers' Association have arrived at some agreement. Just what it is, they refuse to state at the present time and are taking orders at "prices and terms to be announced on April 15." Whether there will be harmonious action with firms not heretofore identified with the association is not clear.

Miscellaneous.—There is scarcely any supply of Block Chalk in bulk on the spot, and none is offered to arrive by sail vessel. Prices are, therefore, nominal in a great measure. Orders to a very fair extent have been placed for Whiting for near future delivery, and contracts for liberal quantities of Paris White are also noticed, but there has been no change in prices for either article. French Talc continues scarce and firm at full previous prices, and the domestic product is selling quite freely at full rates. French Terra Alba is in more liberal supply, and sales are reported at 90¢ @ 95¢. Domestic is steady and in fair demand. Arrivals of China Clay are still closely taken up, and prices remain very firm. Barytes firm, with demand good and the offering of prime quality moderate.

Members of the Paint, Oil and Varnish Club of this city, co-operating with sister organizations in other cities, are industriously at work endeavoring to induce manufacturers of Oil Colors to adopt a uniform "long" price-list; but the scheme meets with opposition in influential quarters, and it is doubtful at this time that a satisfactory agreement can be arrived at.

Oils and Turpentine.

Linseed Oil.—Rumors are current that the prices agreed upon at the late meeting of crushers are not being rigidly adhered to by out-of-town firms. Sales for future delivery, in fact, are said to have been made as low as 50¢ here, against 54¢ for ordinary parcels on the spot. City crushers, however, have made no change in their prices, the current quotations on Raw Oil being 56¢ for domestic and 62¢ for Calcutta seed product, with usual allowance for packages. There has been rather more business the present week, but the movement is not above the average for the season.

Cotton Seed Oil.—Transactions have been on a rather smaller scale, and the demand is hardly as good at the present time as it was a week ago. Some difference of opinion is expressed as to the status of the market, but the indications are that holders have the advantage and that some pressure is brought to bear by persons most interested as buyers. Dealings in both Crude and Refined product have been chiefly at prices within the range at which last week's sales were effected.

Lard Oil.—The best city brands of Prime Oil are now openly offered at 49¢, and have been sold in lots of a few barrels at that price. Others are quoted at 1¢ less and freely offered. The demand is of a merely routine character, and the condition of the Lard market undoubtedly tends to restrain purchases of greater quantities than may be required to tide over immediate wants.

Fish Oils.—The association price for Prime Crude Menhaden has been fixed at 30¢, but no purchases have yet been made at the advanced rate, and there is little demand at present from pressers or exporters. The Pressed and Bleached Oils, while finding merely routine sale, are held at higher prices.

Nothing new has transpired in the market for Crude, Sperm or Crude Whale Oils. The manufactured goods are selling fairly at firm prices.

Cocoanut Oil.—The spot supply of Cochin is in few hands and held for a fancy price. Round lots for future delivery, however, are offered at 1¢ less than the rate quoted for spot parcels. There is similar variation in prices for Ceylon, and the movement of both varieties is momentarily light.

Olive Oil.—For stock on the spot (in barrels) holders are quoting 68¢ @ 70¢ and report small sales at those figures. Lots to arrive are offered at 2¢ @ 3¢ less, however, and find limited sale.

Spirits Turpentine.—There has been very little movement in prices the past week. Sales were chiefly at 40¢ for regular and 40½¢ for machine barrels. The movement of stock from first hands has been merely fair and the demand at present is devoid of animation. Supplies are liberal here and at the Southern centers. Closing prices were 40½¢ @ 41¢, as to style of package.

MANUFACTURING.

(*Hardware—Continued from Page* 342.)

R. H. Woodsum & Co. of East Braintree, Mass., tack manufacturers, are preparing to move their plant to South Braintree.

The American Nut Lock Company, St. Louis, has been incorporated with a capital stock of $20,000, paid in. John A. Inslee, Frederick A. Johann and John A. Harrison are the shareholders.

The Ithaca Gun Company report that business for 1890 was very satisfactory to their stockholders. This enterprising company are contemplating the manufacture of the lately patented Clinton typewriter.

The Canton Cutlery Company have been organized at Canton, Ohio, and have taken possession of the building formerly occupied by the Canton File Works. The company have purchased the machinery, stock and entire outfit of the Akron Cutlery Company, and expect to be in running order in a few weeks. They will make pocket cutlery at the start, and will also add table cutlery to their product as soon as possible.

Miscellaneous.

At Cleveland, Ohio, last week the Pittsburgh Reduction Company of Pittsburgh, entered suit against the Cowles Electric Smelting and Aluminum Company of Cleveland, in the United States Circuit Court of the State of Ohio, for infringement upon one of their patents on the method of manufacturing aluminum. The Pittsburgh company claim the Cleveland company, whose works are at Lockport, N. Y., plainly infringes upon the process patented by them.

Col. J. W. Moore, a well-known coke operator, has purchased from Col. J. M. Guthrie of Indiana, Pa., a tract of coal land containing 1700 acres, at a reported consideration of $100,000. The land is located near Homer City, Pa. Mr. Moore already owns over 1000 acres in that locality, upon which 200 coke ovens have been erected. In the spring 600 additional ovens will be built.

At the regular annual meeting of the stockholders of the Mansfield Coal and Coke Company, held in Pittsburgh last week, the following board of directors were elected for one year: Charles Arbuthnot, William G. Park, H. K. Porter, Henry Lloyd, George A. Berry and John F. Scott. James T. Armstrong was chosen president and treasurer, and William H. Shinn, secretary.

The following corporations have been authorized by the Secretary of State of Illinois: Illinois Fuel Economy Company, at Chicago; capital stock, $100,000, to manufacture heating appliances, and furnish heat, steam and fuel; incorporators, W. H. Singer, C. A. Powers and F. M. Melick. E. T. Harris Company, at Chicago; capital stock, $75,000; for the manufacture of iron, brass and metal work; incorporators, A. B. Camp, Arnold Newell and Lincoln Fishback. The Fredericks Ornamental Relief Works, at Chicago; capital stock, $50,000; for the manufacture of exterior and interior ornamentation for buildings; incorporators, W. Y. Hendron, S. M. Dille and Will Terrell. Coal Saving Grate Company, to manufacture a patent grate; capital stock, $50,000; incorporators, Frank Buchanan, J. Henry Kraft and Henry Petersen.

On Friday the 13th inst. a charter was granted to the Juniata Coke Company of Dawson Station, Fayette County, Pa., with a capital stock of $300,000. The directors are John J. Speer of Pittsburgh; Charles L. Fitzhugh and Gottlieb A. Steiner of Allegheny City; James Cochran and John T. Cochran of Dawson Station, and Philip G. Cochran of Vanderbilt. The incorporators of the company are members of the firm of Shoenberger, Speer & Co., proprietors of the Shoenberger furnaces and Juniata Iron and Steel Works at Pittsburgh, and it is their intention to erect ovens and manufacture their own coke. About 300 acres of coal lands have been purchased at Dawson and the building of coke ovens will be commenced as soon as possible.

A committee of the Hamburg, Pa., Board of Trade have visited Reading with a view to inducing J. H. Sternbergh & Sons to establish their nut and bolt works, recently destroyed by fire, at Hamburg.

The Pullman car shops recently destroyed by fire at St. Louis, Mo., will be rebuilt.

The Gordon Land and Improvement Company, with a minimum capital stock of $750,000, were recently incorporated at Gordonsville, Va., for the purpose of developing zinc and lead ores. N. W. Boe is president of this company; W. L. Fleming, vice-president; W. L. Walters, Jr., second vice-president; P. P. Barbour, third vice-president; H. L. Hoover, manager; R. H. Stratton, treasurer; C. B. Linney, secretary.

Refrigerator with Removable Center Piece in Ice Chamber.

The G. M. Shirk Mfg. Company, Chicago, Ill., are putting on the market a refrigerator having a feature of novelty that will interest the trade at large. In Fig. 1 a general view of the refrigerator is shown, the special feature of which is the removable center piece in the ice chamber. A broken view of this center piece showing its construction is illustrated in Fig. 2. Referring to the latter cut, its operation will be readily understood. By placing the finger in the opening in the side and pressing on the lever A, an oscillating motion is given to the catch bar, which throws it into the slot C, the slotted piece of metal being screwed permanently to the lower portion of the cross bar. F is a spring which holds the catch bar in place. The bars D D at the top are permanent and are inserted into the plate E, which is screwed to the top cross bar of the refrigerator. The advantage of this construction is that the standard can be removed, giving the entire space for putting ice into the chamber, thus avoiding the necessity of chopping the ice into smaller pieces, which is always a cause of waste. The doors, it will be noticed in Fig. 1, are hinged on each side and fastened in the center by patent lever wedge lock. By means of this construction the doors can be used either separately or together.

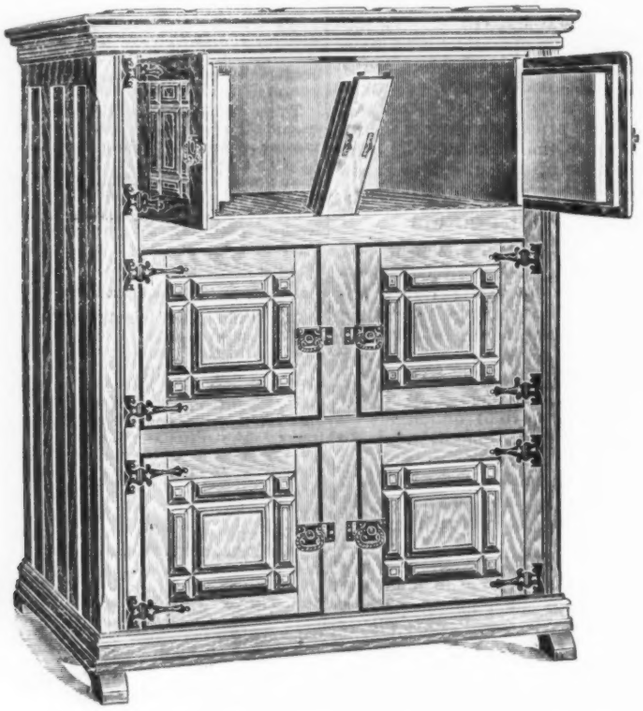
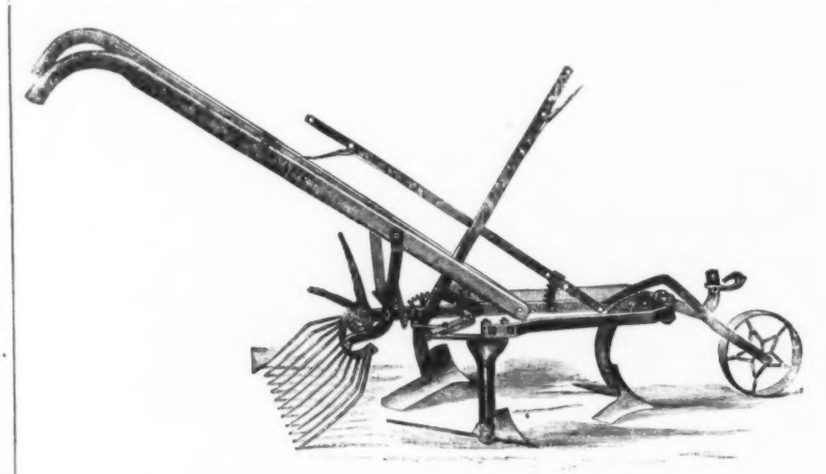


Fig. 1.—Refrigerator with Removable Center Piece in Ice Chamber.

Fig. 2.—View Showing Construction of Removable Center Piece.

Planet Jr. Market Gardeners' Horse Hoe and Cultivator Combined.

S. L. Allen & Co., Philadelphia, Pa., refer to the tool herewith illustrated as one of the most important of their 1891 productions. It is used as a market gardeners' horse hoe and pulverizer, and also as a sugar beet horse hoe and pulverizer, being constructed conspicuously in the interest of very fine close level culture of market garden crops, the sugar beet, and for level culture generally. They are identical in construction, except the former is equipped with a 12-inch sweep, two 10-inch hoes and a 25-inch pulverizer; while the beet horse hoe has an 8-inch sweep, two 6-inch hoes and a 20-inch pulverizer. It is stated that they are very neatly made, and that each tooth is so formed that while the soil is worked most thoroughly it remains level. The Market Gardeners' Horse Hoe is intended at a single passage to work all rows from 18 to 32 inches wide, and the Beet Horse Hoe all from 12 to 24 inches. The fact is pointed out that the hoes in either may be exchanged from one side to the other, and the pulverizer may be reduced in size for narrow rows, or by taking off the sweep and the center tooth of the pulverizer, securing the handles to one side and replacing the wheel with a pair of steel runners, either tool may be used to straddle the row and cultivate both sides at once, as in cotton, &c. The '91 Lever Wheel is a feature here also, which is noticeable for the ease and delicacy of its adjustment.



Planet Jr. Market Gardeners' Horse Hoe and Cultivator Combined.

Prescott's I X L Carriage Jacks.

Edwin Prescott, Boston, for whom Parker & Wood, 49 North Market street, Boston, are agents, is putting on the market a Carriage Jack, as illustrated herewith. The Jack has a wheel in front to enable the operator to handle the Jack easily and without going under the carriage. When the handle of the Jack is raised the wheel is lowered to the ground or floor and the Jack can thus be trundled about as desired. By depressing the handle the base drops and the wheel in front rises with the load to be lifted. The Jacks are made in three sizes, Nos. 1, 2 and 3. No. 1 is designed for car-

Prescott's I X L Carriage Jack.

riages, hacks, &c.; No. 2 for heavier wagons, and No. 3 for those that weigh from 5000 to 8000 pounds or more. Nos. 1 and 2 are fitted with iron caps to take the wear, and Elastic Buffers secured in such a manner as to prevent the Axle being bruised by the jackhead. The No. 3 has iron-clad notches throughout. The notches are wide, designed so as to have the load always within the base, and, it is stated, rises to the same extent on any notch.

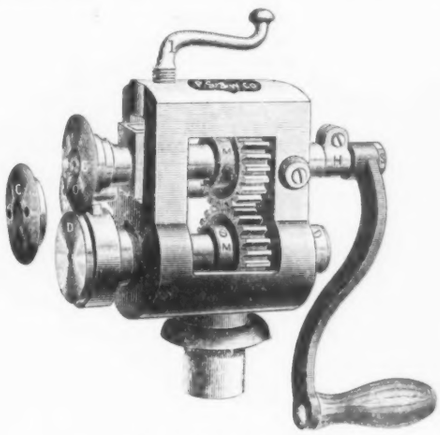


Fig. 1.—Large Burring Machine.

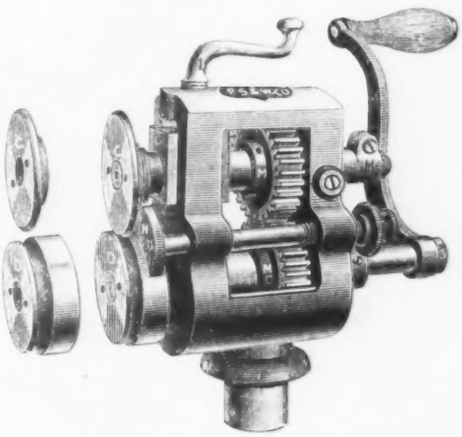


Fig. 2.—Large Turning Machine.

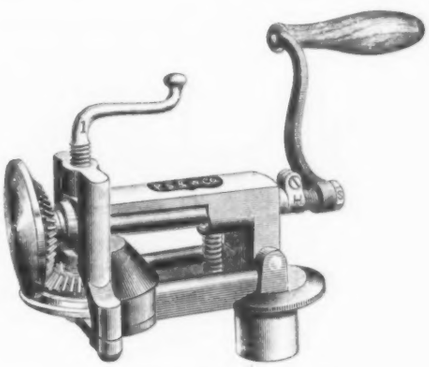


Fig. 3.—Setting-Down Machine.

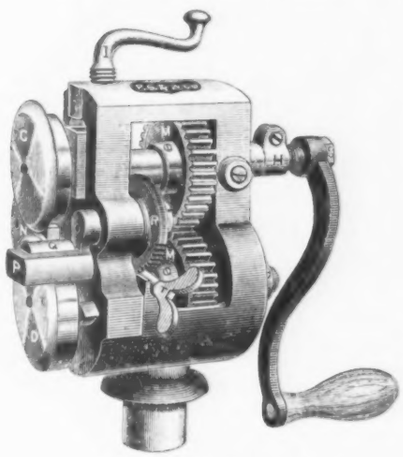


Fig. 4.—Wiring Machine.

STOW'S NEW 1892 COLUMBIAN TINSMITHS' MACHINES.

Celluloid-Edged Drafting Tools.

Kolesch & Co., 155 Fulton street, New York, are introducing straight edges and T squares for drafting purposes, as illustrated in Figs. 1 and 2. The wood cross piece of the head is lined on each side with strips of celluloid ⅛ inch wide. One end of the cross piece is fastened to the head by screws, while the other end has a piece of celluloid set into the wood, to prevent warping and to insure durability. The head is lined with ebony. The straight edge has the same special features as the T square, the arrangement of wood and celluloid being similar. The advantages claimed for the edges of celluloid are its transparency, through which drafted lines can be seen, thus materially assisting in the work, and the fine and durable edge secured. These goods are neat in appearance and substantially made.

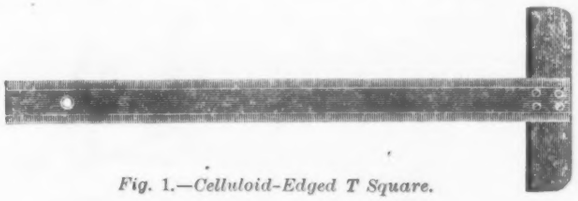


Fig. 1.—Celluloid-Edged T Square.

Fig. 2.—Celluloid-Lined Straight Edge.

Stow's New 1892 Columbian Tinsmiths' Machines.

The Peck, Stow & Wilcox Company, 27 Chambers street, New York City, have just brought out an entirely new set of machines, under the name Stow's New 1892 Columbian Tinsmiths' Machines, views of which are shown in the accompanying illustrations. Fig. 1 shows large burring machine, a smaller size of the same machine being also included in the set. Fig. 2 is a large turning machine, which is likewise made in a smaller size. Fig. 3 is a setting-down machine, and in Fig. 4 a general view is presented of the wiring machine. Several special merits are claimed for this new line. One of the principal features to which the manufacturers call attention is that the machines are made with solid frame, insuring strength and durability. They are also, like Messrs. Peck, Stow & Wilcox Company's encased machines, made to standard gauges, so that all the parts are interchangeable. The manufacturers state that this peculiarity has become a very important factor to the trade in general, as they are now enabled to obtain repairs for any machine by simply naming the letter on the part wanted and the style of machine to which it refers. In addition to the features noted in these machines, a compensating spring is used in the operation of the faces, by which means they are enabled to pass over thick seams or heavy metal without injury to the machine or to the sheet. The set is intended especially to take the place of machines now in use, known as No. 1, or Raymond's, and we understand that they are being put on the market at a somewhat less figure than the encased machines.

Rudolph's Sportsman's Specialties.

We illustrate herewith, Fig. 1 to 7 inclusive, a line of sportsman's specialties which are the invention of T. W. Rudolph, who is connected with the sporting goods department of Hibbard, Spencer, Bartlett & Co., Chicago. The net handle, Fig. 1, has the ring jointed in the middle and so arranged as to admit of its being put away in a 31 or 48 inch handle. The point is made that it is absolutely impossible to pull or spring out the ring when adjusted. It is claimed that it is plain,

simple, rigid and durable. The ventilated tackle box, Fig. 2, is described as having the trays made of perforated tin, concaved, with double bottoms to each division, thus enabling the contents to be kept perfectly dry and free from rust or

Fig. 1.—Jointed Ring Landing and Dip Net Handle.

accumulation of dust. The concaved bottoms to divisions enable any article ever so small to be drawn from any part of the trays, there being no corners. The divisions are carefully arranged to hold hooks, lines, sinkers, fly book, &c., lines on original blocks, tools, stringers, &c., in bottom, and a roomy place for two or more

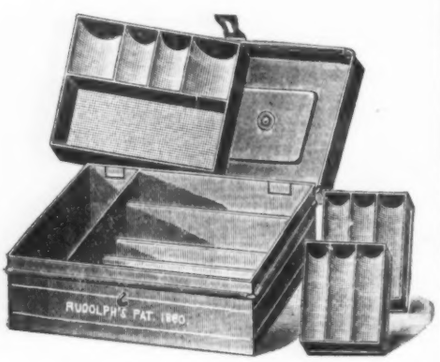


Fig. 2.—Ventilated Tackle Boxes.

reels. These boxes are made in two sizes, ornamented and japanned in green. The minnow trap, Fig. 3, is referred to as a revolution in minnow catching far superior to and one-fourth the cost of a minnow seine. The point is made that with this trap there is no wading, dragging, rotting or tearing, as is necessary in using the seine. To operate it a soda cracker is crumbled up fine, or bread crumbs are placed in the trap, which is then set in the water near the minnows. The statement is made that it is wonderful the large number of minnows that have been caught in five

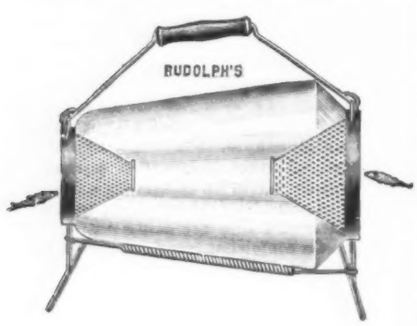


Fig. 3.—Minnow Trap.

minutes in this trap. The minnows can be removed instantly. If set in the water half or two-thirds its depth the minnows will live in it for days. Each trap is packed in a light wooden box with hinged lid and fastening. The entire is so light as to be readily carried with one hand. Fig. 4 shows a fish stringer, made from brass safety links. The advantages of this stringer are thus referred to: That the round-pointed needle and bar are soldered on and so adjusted as to be utterly impossible to pull out, and being heavily nickeled, that it will not corrode or rust in any water, making it indestructible and last a life time; that there is nothing so desirable to tug heavy strings of fish behind your boat with; are made in small size for ordinary fishing and large size for muscallonge, &c. The statement is made that it is stout enough to tow several hundred pounds. The drinking cup, illustrated in Fig. 5, is especially designed for sportsmen, anglers, prospectors, miners, woodsmen, &c. It is made in one piece, no seam or handle to come apart, is heavily nickel plated, has stout safety-pin swiveled on so that it can

Fig. 4.—Safety Chain Fish Stringer.

be attached to any portion, front, back or side of waist. The point is made that there is no need of a belt, especially so distressing in hot weather. The cup being nickeled on heavy tin, makes it very durable and prevents its

Fig. 5.—Nickled Drinking Cup.

either rusting corroding or tasting in use of water, lemonade or liquors of any kind. The pocket tackle box, Fig. 6, is referred to as the quintessence of compactness, not an atom of space being lost. There is a

Fig. 6.—Pocket Tackle Box.

perforated creel for holding the lines or gut leaders, two circular trays for assortments of hooks, swivels, flies, hooks on gut, &c. It makes an admirable leader box or fly box. The box is fitted with stout brass hinge and suitable fastening, and is so compact as to be almost unobserved in the hip pocket. The adjustable bait box, Fig. 7, is described as being round, roomy and out of the way, having a stout safety pin swiveled to back to enable its being attached to side, front or back of waist, or carried in pocket if desired, doing away with the wearing of a heating belt to hold it on. These boxes

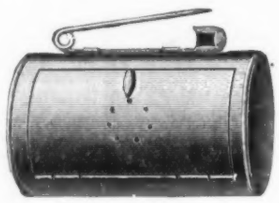


Fig. 7.—Adjustable Bait Box.

are nicely japanned and ornamented; the fastening to lid enabling the fisherman to open and close the box and remove the bait instantly with one hand, avoiding the necessity of laying down your rod. We are advised that these goods may be obtained from dealers in fishing tackle in general, or from Hibbard, Spencer, Bartlett & Co., Chicago.

Covert Rubber Interfering Boot.

Covert Mfg. Company, West Troy, N. Y., are introducing an interfering boot, as illustrated, Fig. 1. It is described as being a complete air cushion, light and elastic. The manufacturers claim that it will pro-

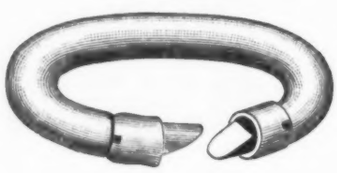


Fig. 1.—Covert Rubber Interfering Boot.

tect the ankle better than the usual leather boot, that it will not retain mud, dust or dirt, and that it does not have to be cleaned and dried before using. It is stated that it cannot absorb water or become rotten or damaged by any exposure. Fig 2 shows the manner in which it is used. The

Fig. 2.—The Application of the Covert Boot

point is made that it is easily and quickly adjusted and readily removed when desired, is neat in appearance, and cannot under any circumstances injure or irritate the animal.

At the Dudelauge Steel Works, Luxemburg, a new recarburizing process is working successfully. It is the invention of the general manager, Meyer.

Enterprise Sad-Iron Heaters.

Enterprise Mfg. Company, Philadelphia, Pa., are introducing sad-iron heaters, as illustrated in Figs. 1 and 2. They are intended to be attached to any gas burner by means of a rubber hose, and may be used for all ordinary boiling or cooking purposes. Their quick heating power is explained by the manufacturers as resulting from the fact that they are constructed on the Bunsen burner principle, the current of gas entering the heater and carrying with it a good supply of air, which causes an intensely hot blue flame.

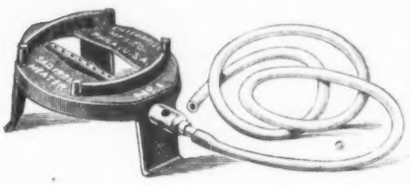


Fig. 1.—Sad-Iron Heater for One Iron.

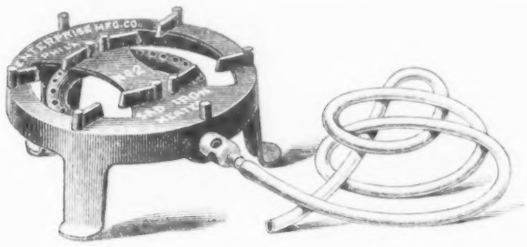
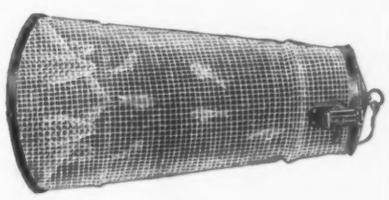


Fig. 2.—Sad Iron Heater for Two Irons.

The Little Daisy Trap.

An ingenious invention for catching minnows for bait is being manufactured and sold by J. S. Cochennour & Co. of Olney, Ill., as illustrated herewith. This trap is the result of a large series of experiments by a practical fisherman, who has had 35 years' experience in fishing in various streams and with different contrivances for doing the same work. The trap is made of light galvanized wire, with ¼ inch mesh, and is cone-shaped, having an inverted bottom, above which extend into the body of the trap several smaller cones opened at the ends to admit the minnows. At the top of the trap is a lid securely fastened on, which may be removed at pleasure to withdraw the contents. The trap is attached to the bank by a wire or a stout cord, and thrown into the water so that it will lay on its side. The shape of the trap is such that the current, if in a running stream, will carry the lower and larger end down stream. A depth of 3 feet has been found to answer the purpose best. To bait the trap, corn meal is used for steel back or silver side minnows, while fresh meat is best for tempting chubs, blue fins, red fins, sunfish or top swimmers, and bread or cheese will do the same for channel cats, red horse, young buffalo and corp minnows. The inventor has been very successful in catching eels in water 4 to 5 feet deep by removing the cork from the center opening in the inverted bottom and placing the bottom of the trap down stream. The minnows caught are of uniform size, running from 2 to 3½ inches long. The size of the trap has much in its favor, as it is 20 inches high and 14 and 8 inches in diameter at bottom and top, while the weight is only 3½ pounds, making it easy to carry. It is claimed that this contrivance will do away with the necessity of entering the water with a drag net or seining with a dip net. The cost is also much less than a net, and it will last longer and give better service than a drag net. It requires no care, and after setting, only a few hours are required to catch sufficient minnows to last an indefinite period. The inventor has numerous testimonials from fishing clubs and others attesting to its efficiency and economy of time in performing its work.



Little Daisy Minnow Trap.

Jewett's New Ideal Coffee Urn.

The John C. Jewett Mfg. Co., Buffalo, N. Y., are introducing a coffee urn, as illustrated herewith. The hot-air flue A surrounding the water compartment B is referred to as a great economizer in time and fuel. The heat is brought in direct contact with the entire surface of this water compartment, and it is claimed that the water will be heated rapidly, with one-half the amount of fuel usually required. The coffee reservoir C is covered with porcelain both inside and out, to obviate all chance of rusty accumulations in the hot-water compartment, making it unnecessary to take it out for cleaning except at long intervals, and then only to remove any sediment deposited by the water. To remove the reservoir the faucets and couplings are unscrewed. D is the receiver, with cotton fabric filter, which can easily be removed for cleaning. There are two glass tubes, one for a hot water and the other for a coffee indicator, showing the level of each. The coffee is made by filtration, the grounds being kept separate, which allows the porcelain reservoir to be kept sweet and clean, and obviates the coffee becoming bitter or changing, though left standing. The urn is nickel plated, can be used with a spirit or oil lamp or gas, and is designed for hotels, restaurants, asylums, &c.

Jewett's New Ideal Coffee Urn.

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CURRENT HARDWARE PRICES.

FEBRUARY 18, 1891.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Adjusters, Blind.

Domestic.....₩ doz $3.00, 33⅓%
Excelsior.....₩ doz $10.00....50&10&2%
Washburn's Self-Locking.....20&20&10%

Ammunition.—

Caps, Percussion, ₩ 1000—
Hicks & Goldmark's and Union Metallic Cartridge Co.
F. L. Waterproof, 1-10's.....34@35¢
E. B. Trimmed Edge, 1-10's.....46@48¢
E. B. Grnd. Edge, Cent. Fire, 1-10's.....46@47¢
Musket Waterproof, 1-10's.....50¢
G. D.....28¢
S. B. Genuine Imported.....45¢
Eley's E. B.....54¢ @ 55¢
Eley's D Waterproof, Central Fire...$1.60

Cartridges—
Rim Fire Cartridges.....50&5&2 %
Rim Fire Military.....15&2 %
Cent. Fire, Pistol and Rifle.....25&5&2 %
Cent. Fire, Military and Sporting 15&5&2 %
Blank Cartridges, except 22 and 32 cal., additional 10 % on above discounts.
Blank Cartridges, 22 cal., $1.75.....2 %
Blank Cartridges, 32 cal., $3.50.....2 %
Primed Shells and Bullets.....15&5&2 %
B. B. Caps, Round Ball, $1.75.....2 %
B. B. Caps, Con. Ball, Swgd., $2.00.....2%

Primers—
Berdan Primers, $1.00.....2%
B. L. Caps (for Sturtevant Shells) $1.00, 2%
All other Primers, $1.20.....2%

Shells—
First quality 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....30&10&2%
Prize.....40&2%
Star, Club, Rival and Climax brands, 33⅓&10&2%
Seibold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax.. 65&2%

Shells Loaded—
Standard List, July 19, 1890.....40&5%
₩ ads—Price per M.
U.M.C.&W. R. A.—B. E., 11 up... 68¢
U.M.C.&W. R. A.—B. E., 9&10... 82¢
U.M.C.&W. R. A.—B. E., 8..... 96¢
U.M.C.&W. R. A.—B. E., 7..... $1.10
U.M.C.&W. R. A.—P. E., 11 up.. 1.15
U.M.C.&W. R. A.—P. E., 9&10.. 1.50
U.M.C.&W. R. A.—P. E., 8..... 1.70
U.M.C.&W.R. A.—P. E., 7..... 1.80
Dis.20&2
Eley's B. E., 11 up.....$1.75
Eley's P. E., 11@20.....2.80

Anvils.—

Eagle Anvils, ₩ ℔ 10¢.....15@15&5%
Peter Wright's.....11½@12¢
Armitage's Mouse Hole.....10½@11¢
Armitage's Mouse Hole, Extra...12@12½¢
Trenton.....10@10½¢
Wilkinson's.....10½@11¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—
Millers Falls Co., $18.00.....20%
Cheney Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%
Star.....45&5%

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher,
P. S. & W. Co.
Rockford Bit Company.
Cook's, Douglass Mfg. Co.
Cook's, N. H. Copper Co. 50&10@50&10&5%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jenning & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ₩ set, 32½ quarters, No. 5, $5; No. 30, $3.50.20%
Lewis' Patent Single Twist.....45%
Russell Jennings' Augers and Bits.25&10%
Imitation Jennings Bits.....60@60&5%
Snell's Jennings Pattern.....60%
Pugh's Black.....20%
Rockford, Jenning's Pattern.....60%
Car Bits.....60@60&10%
Car Bits, P. S. & W. Co.....60&10%
Snell's Car Bits.....60%
L Hommodieu Car Bits.....15&10%
Forstner Pat. Auger Bits.....20%
Cincinnati Bell-Hangers' Bits...50&10%

70&10%

Bit Stock Drills—
Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Williams' or Holt's, for metal.50&10&10%
Williams' or Holt's, for wood...40&10%
Cincinnati, for wood.....30&10%
Cincinnati, for metal.....45&10%

Expansive Bits—
Clarks' small, $18; large, $26 ₩ doz.35@35&5%
Ives' No. 4, ₩ doz $60.....40%
Swan's.....40%
Steer's, No. 1, $26; No. 2, $22.....35%
Stearns' No. 2, $48.....20%

Gimlet Bits—
Common.....₩ gross $2.75@$3.25
Diamond.....₩ doz $1.10....25&10%
Bee.....25@25&5%
Double Cut, Shepardson's....45@45&10%
Double Cut, Ct. Valley Mfg. Co...30&10%
Double Cut, Hartwell's, ₩ gro.....$5.25
Double Cut, Douglass'.....40&10%
Double Cut, Ives'.....60@60&10%

Hollow Augers—
Ives } 33⅓ @
French, Swift & Co. } 33⅓&10%
Douglass'
Bonney's Adjustable, ₩ doz $48...40&10%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's.....25@25&10%
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....25&10%

Ship Augers and Bits—
L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10@5%

Awl Hafts—See Hafts, Awl.

Awls, Brad Sets, &c—

Awls, Sewing, Common ₩ gr $1.70, 35%
Awls, Should. Peg, ₩ gr $2.45, 40@40&10%
Awls, Pat. Peg...₩ gr 63¢....40@40&10%
Awls, Shouldered Brad...2.70 ₩ gr.....35%
Awls, Handled Brad...$7.50 ₩ gr.....45%
Awls, Handled Scratch ₩ gr, $7.50.35&10%
Awls, Socket Scratch, ₩ doz, $1.50.25&30%

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

	Plain.	Beveled.
First quality	$8.00	$8.50
Others	7.50	8.00

Axle Grease—See Grease, Axle.

Axles—

No. 1, 4¼@5¢, No. 2 5½¢@6½¢ } 3 % cash
Nos. 7 to 14.....55&5%
Nos. 15 to 18.....47½%
Nos. 19 to 22.....70%
Concord Axles, loose collar.....5¢@6¢
Concord Axles, solid collar.....6¢@7¢
National Tubular Self-Oiling.....33⅓%@33⅓&5%

Bag Holders.—See Holders, Bag.

Balances—

Spring Balances.....40%

	No. 2000	20	30
Chatillon, ₩ doz	$0.80	0.95	1.75 net

Chatillon Straight Balances.....40%
Chatillon Circular Balances.....50&10%

Bars.

Crow—
Cast Steel.....₩ ℔ 3½¢
Iron, Steel Points.....₩ ℔ 3¢

Basins, Wash—

Standard Fiberware, No. 1, 10½-inch, $2; 12-inch, $2.25; 13½-inch, $2,75; 15-inch, $3.25.

Beams, Scale—

Scale Beams, List Jan. 12, '82...50&10@50&10&5%
Chatillon's No. 1.....40%
Chatillon's No. 2.....50%
Custer's.....33⅓%

Beaters—

Egg—
Dover.....₩ doz $1.50
Duplex (Standard Co.).....₩ doz $1.25
Rival (Standard Co.).....₩ doz $1.00
Duplex Extra Heavy (Standard Co.)..... ₩ doz $3.50
Bryant's.....₩ gro $14.00
Double (H. & R. Mfg. Co.), ₩ gro. No. 0, $12.00; No. 1, $15.00; No. 2.....$36.00
Easy (H. & R. Mfg. Co.).....₩ gro $12.00
Triple (H. & R. Mfg. Co.).....₩ gro $16.50
Spiral (H. & R. Mfg. Co.).....₩ gro $4.50
Improved Acme (H. & R. Mfg. Co.)..... ₩ gro $9.00
Paine, Diehl & Co.'s.....₩ gro $24.00
Silver & Co.....₩ doz $5.50

Culinary—
Keystone, P.D.&C., Each, No. 1, $1; No. 2, $2.....20 %

Bells—

Cow—
Common Wrought.....60&10%
Western.....20&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Dodge, Genuine Kentucky....70@70&10%
Texas Star.....50&10@50&10&5%
Call.....40@40&5%
Farm Bells.....₩ ℔ 3¢@3½¢
Steel Alloy Church and School Bells..40%

Door—
Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10@50%
Crank, Taylor's.....25&10%
Crank Brooks'.....50&10&2%
Crank Cone's.....10%
Crank, Connel's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%
Pull, Western.....25&10%

Electric,
Wollensak's.....20%
Bigelow & Dowse.....20%
Taylor's.....20%

Hand—
Light Brass.....75&10%
Extra Heavy.....65&10%
White Metal.....60&10&10%
Silver Chime.....33⅓&10%
Globe Cone's Patent).....25&10@35%

Bellows—

Blacksmiths'.....60&5@65%
Molders'.....40@40&10%
Hand Bellows.....40&10&50%

Belting, Rubber—

Common Standard.....70@70&5%
Standard.....60&10&10@70%
Extra.....50&10@60%
N.Y.B.&P.Co., Carbon...50&5@50&10&5%
N.Y.B.&P.Co., Diamond....40&5@40&10%

Bench Stops—See Stops, Bench.

Benders, Upsetters, Tire.

Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

Bits—

Auger, Gimlet, Bit Stock, Drills, &c., see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Ordinary Tackle, list May 20, 1889... 60&10&10@70%
Cleveland Block Co., Mal. Iron.....50%
Moore's Novelty, Mal. Iron.....50%

Boards, Stove.

Wood Lined "Crystal".....50%
"Embossed".....50%
"Oxidized".....45%
Paper Lined Zinc.....55%
"Crystal".....55%
"Embossed".....55%
"Oxidized".....45%

Bolts—

Carriage, Machine, &c.—
Com. list June 10, '84.....70&10&5&2%
Genuine Eagle, list Oct., '84...75&10@80%
Phila. pattern, list Oct. 7, '84..80@80&10%
R.B.&W., old list.....70%
Machine, list Jan. 1, 1890..... 75&10@75&10&5%
Bolt Ends, list Jan. 1, 1890..... 75&10@75&10&5%

Door and Shutter—
Cast Iron Barrel, Square, &c..70@70&10%
Cast Iron Shutter Bolts.....70@70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts.....60%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
W'r't Shutter, all Iron, Stanley's..60&10%
W'r't Shutter, Brass Knob, "..40&10%
W'r't Shutter, Sargent's list.....60&10%
W'r't Sunk Flush, Sargent's list...55&10%
W'r't Sunk Flush, Stanley's list...50&10%
W'r't B.K.Flush. Com'n "...55&10%

Stove and Plow—
Stove.....60%
Plow.....60&5%
R. B. & W., Plow.....55%

Tire—
Common, list Feb. 28, '83.....65%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83.....65%
Keystone, Philadel., list Oct. '84...80%
Norway, Phila., list Oct. '84.....75%
American Screw Company:
Norway, Phil., list Oct. 16, '84.....75%
Eagle, Phil., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....80%
Bay State, list Feb. 28, '83.....65%
R.B.&W., Philadel., list Oct. 16, '84.....80%

Borers, Tap.

Common and Kind.....20&10%
Ive's Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....20&10@30%
Clark's.....33⅓@35%

Borax.—₩ ℔ 9½@10¼¢

Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon.

Per ℔.....2¾¢

Braces.—

American Bit Brace Co.:
Nos. 10, 12, 20.....60&10%
Nos. 11, 21, 24, 27.....70&10%
Nos. 22, 23, 25.....60&10&5%
Nos. 13, 26, 36, 37.....70&10&5%
Ball Braces, net.....$1.12 to $1.25¢
Amidon's
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Rachet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10 ;10 in.....$2.25
Buffalo Ball.....$1.10@$1.15
Barber's,
Nos. 10 to 16.....50%
Nos. 30 to 33.....50%
Nos. 40 to 63.....50&10%
Saxton's,
Barker's Imp. Polished.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet, Polished.....50&10@60%
Ratchet, Nickeled.....40&10&50%
Buffalo Ball.....net, $1.10@$1.15
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Common Ball, American.....$1.00@$1.10
Fray's Genuine Spofford's..50&5@50&10%
Fray's No. 70 to 130, 81 to 123, 207 to 414 50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barbers.....60&5%
Spofford.....60&5@60&10%
Osgood's Ratchet.....40&10@50%
P. S. & W. Co., Peck's Patent.....60%

Brackets—

Shelf plain, Sargent list, 55&10@55& 10&10%
Shelf, fancy, Sargent s list, 60&10@60 &10&10%
Reading, plain.....50&10@60&10&5%
Reading, Rosette.....60&10@60&10&10%

Bright Wire Goods—See Wire.

Broilers—

Henis' Self-	Inch.....	9	10	9x11
Basting	Per doz	$4.50	5.50	6.50

New Haven.....50%

Buckets, Well.

Galvanized—
Hill's.....₩ doz, 12 qt, $4.25; 14 qt, $5.35
Iron Clad.....₩ doz. 14 qt, $4.25@$4.50
Helwig's Flat Iron Band.....$3.75
Helwig's Wired Top.....₩ doz $4.00

Bull Rings—See Rings, Bull.

Butchers' Cleavers—See Cleavers Butchers'.

Butts—

Brass—
Wrought Brass.....75&10@80%
Cast Brass, Tiebout's.....50%
Cast Brass, Corbin's, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

Cast Iron—
Fast Joint, Narrow.....50&10&5@60%
Fast Joint, Broad.....50&10@60%
Loose Joint.
Loose Joint, Japanned.
Loose Joint, Jap. with Acorns..
Parliament Butts. } ..70&10 @ 75%
Mayer's Hinges.
Loose Pin, Acorns.
Loose Pin, Acorns, Japanned...
Loose Pin, Acorns, Japanned, Plated Tips

Wrought Steel—
Fast Joint, Narrow.
Fast Joint, Lt. Narrow.
Fast Joint, Broad.
Loose Joint, Broad. } .70&10 @75%
Table Butts, Back Flaps, &c
Inside Blind, Regular
Inside Blind, Light
Loose Pin.
Bronsed Wrought Butts.....80

Calipers—See Compasses.

Calks, Toe—

Gautier, One Prong, Blunt.....5½@6¢
Burke's, One Prong, Blunt.....5½@6¢
Burke's, Two Prong, Blunt.....7½@8¢
Burke's, One Prong, Sharp.....6½@7¢

Can Openers—See Openers, Can.

Cards—

Horse & Curry.....10&10&10&10%
Cotton.....10&10&10%
Wool.....10&10&10%

Carpet Stretchers—See Stretchers Carpet.

Carpet Sweepers—See Sweepers Carpet.

Cartridges—See Ammunition.

Casters—

Red.... } Brass....55@55&10%
Plate.... } Others...60@60&10%
Shallow Socket.
Deep Socket.....40&10%
Yale Casters, list May, 1884...30&10@40%
Yale, Gem.....60@60&5%
Martin's Patent (Phoenix).....45&10&50%
Payson's Anti-friction.....60@60&10%
Giant Truck Casters.....30%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....50%

Cattle Leaders—See Leaders, Cattle.

Cement.

Victor Elastic.....5 ℔ pails ₩ ℔ 5¢

Chain—

Trace, Wagon and Fancy Chains, List revised April 21, 1890.....50& 10@60%
American Coil, in cask lots,
3-16 ¼ 5-16 ⅜ 7-16 ½ ⅝ ¾
$7.75 5.45 4.55 4.00 3.65 3.50 3.40 3.30
Less than cask lots, add ¼¢@½¢ ₩ ℔.
German Coil, list Oct. 6, 1890 50&10&5@60%
German Halter Chain, list Oct 6, 1890 50&10&5@60%
Covert Halter.....60&2%
Covert Traces.....35@2%
Covert Heel Chain.....50&2%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₩ ℔ 5½¢@6¢
Jack Chain, Iron.....75&10@80%
Jack Chain, Brass.....75@75&10%

Chalk—

White.....₩ gr 50¢
Red.....₩ gr 70¢
Blue.....₩ gr 85¢
See also Crayons.

Chalk Lines—See Lines.

Chisels—

Socket Framing and Firmer.
P. S. & W. } ..75 @ 75&10
New Haven.
Witherby.
Mix.
Ohio Tool Co.
Douglass.....75@75&5%
Buck Bros.....50%
Merrill.....60&10@60&10&5%
L. & I. J. White.....30@30&5%

Tanged and Miscellaneous.
Tanged Firmers.....40&10@50%
Butchers'.....$4.75@$5.00
Spear & Jackson's.....$5 to $
Buck Bros.....30%
Cold Chisels, ₩ ℔.....15@16¢

Chucks—

Seach Pat.....each, $8.00.....20%
Morse's Adjustable,each, $7.00, 20@20&5%
Danbury.....each, $6.00, 30@30&5%
Syracuse, Bals Pat.....25%
Graham Patent.....33⅓%
Skinner's Patent Chucks.
Combination Lathe Chucks.....33⅓%
Universal Lathe Chucks.....40%
Independent Lathe Chucks.....40%
Drill Chucks.....15%
Union Mfg. Co.,
Victor.....$8.50, 25%
Combination.....40%
Universal.....40%
Independent.....40%

Churns.

Tiffin Union, each, 5 gal. $3.25; 7 gal., $3.75; 10 gal. $4.25.
McDermaid Star Barrel Churn, each, 6 gal., $2.60; 10 gal., $2.75; 15 gal., $3.00; 20 gal. $3.25.

Clamps—

R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Cincinnati.....15&10%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....30&30&10%
Stearn's Adjustable Cabinet and Corner.....30&30&10%
Cabinet, Sargent's.....60&5&10%
Carriage Makers', Sargent's.....70&10%
Carriage Makers', P., S. & W. Co..40&10%
Eberhard Mfg. Co.....40&5&40&10%
Warner's.....40&10&40&10&5%
Saw Clamps, see Vises, Saw Filers'.
Carpenters', Cincinnati.....25&10%

Cleavers.

Butchers'.

Bradley's.....25@30%
L. & I. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P., S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Clips—

Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16 60&5%
Superior Axle Clips.....66⅔&5&70%
Norway Spring Bar Clips, 5-16..60&5&5%
Wrought-Iron Felloe Clips.....₩ lb, 5½¢
Steel Felloe Clips.....₩ lb, 5¢
Baker Axle Clips.....25%

Cloth and Netting, Wire—See Wire, &c.

Cockeyes.....50%

Cocks, Brass.

Hardware list.....50&2%

Coffee Mills—See Mills, Coffee.

Collars, Dog, &c.

Medford Fancy Goods Co.....40&10%
Embossed, Gilt, Pope & Steven's list 30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%
Chapman Mfg. Company.....60&10@60%

Combs, Curry.

Fitch's.....50&10@50&10&10%
Rubber, per doz $10.00.....20%
Perfect.....50%

Compasses, Dividers, &c.—

Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s
Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's
Spring Calipers and Dividers.....25&10%
Lock Calipers and Dividers.....25%
Combination Dividers.....25%

Coopers' Tools—See Tools, Coopers'.

Cord—

Sash.

Common.....₩ lb 10@11¢
Patent, good quality.....₩ lb 13@13½¢
White Cotton Braided, fair..₩ lb 26 @ 27¢
Common Russia Sash.....₩ lb 13½¢
Patent " " .....₩ lb 15¢
Cable Laid Italian Sash.....₩ lb 22@23¢
Indian Cable Laid " .....₩ lb 13¢
Silver Lake—
A Quality, White, 50¢.....10&10&5%
A Quality, Drab, 55¢.....10&10&5%
B Quality, White, 50¢.....28@30%
B Quality, Drab, 55¢.....31@33%
C Quality, White (only).....26@27¢
Sylvan Spring, Extra Braided, White, 34¢
Sylvan Spring, Extra Braided, Drab..39¢
Semper Idem, Braided, White.....30¢
Egyptian, India Hemp, Braided.....25¢
Samson—
Braided, White Cotton, 50¢...30@30&5%
Braided, Drab Cotton, 55¢....30@30&5%
Braided, Italian Hemp, 55¢...30@30&5%
Braided, Linen, 80¢.....30@30&5%
Tate & Co. Braided Wire, ₩100 ft.... 54¢

Wire Picture.

Braided or Twisted.....75&10%

Corkscrews—See Screws, Cork.

Corn Knives and Cutters—See Knives, Corn.

Crackers, Nut—

Table (H. & B. Mfg. Co.).....40%
Blake's Pattern.....₩ doz $2.00, 10%
Turner & Seymour Mfg. Co.....50%

Cradles—

Grain.....50&5&2@50&10&2%

Crayons.

White Crayons, ₩ gr, 12@12½¢.....10%
D. M. Stewart Mfg. Co., Metal Workers, ₩ gr, $2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill, ₩ gr, $2.50.....25%
See also Chalk.

Crow Bars—See Bars, Crow.

Curry Combs—See Combs, Curry.

Curtain Pins—See Pins, Curtain

Cutters—

Meat.

Dixon's ₩ doz.....40&5%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Woodruff's ₩ doz.....40&5%

Nos.		100	150
		$15.00	$18.00

Hales Pattern ₩ doz.....70@70&5%

Nos.	11	12	13
	$27.00	$33.00	$45.00

American.....30%

Nos.	1	2	3	4	5
Each	$5	$7	$10	$25	$50	$60

Enterprise.....30%

Nos.	10	12	22	32	42
Each	$3	$2.50	$4	$6	$15

Great American Meat Cutter.....30%

Nos.	112	116	118	120	122
Each	$2.00	$2.75	$3.00	$2.50	$4.00

Miles' Challenge ₩ doz.....45@45&10%

Nos.	1	2	3
	$22.00	$30.00	$40.00

Home No. 1.....₩ doz, $26.00, 55&10%
Draw Cut, each:

Nos.	5	2	6	8
	$50	$75	$80	$225

.....20@25%
Great American.....30%
Beef Shavers (Enterprise).....20&10@30%
Little Giant.....50%
Chadborn's Smoked Beef Cutter, ₩ doz $66.00

Tobacco.

Champion.....20&10@30%
Wood Bottom.....₩ doz $5.00@$5.25
All Iron.....₩ doz $4.25
Nashua Lock Co.'s..₩ doz, $18.00 50@55%
Wilson's.....55%
Sargents's.....₩ doz, $24, 55&10%
Acme.....₩ doz $20.00, 40%

Washer.

Smith's Pat.....₩ doz $12.00, 20&10&10%
Johnson's.....₩ doz $11.00, 33⅓%
Penny's.₩ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₩ doz $16.00, 60&10%
Bonney's.....30&10%
Cincinnati.....25&10%

Cutlery—

Pocket and Table.....Net prices
Wostenholm.. .New list in preparation

Dampers, &c—

Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Diggers, Post Hole, &c.—

Samson Post Hole Digger, ₩ doz $36.00, 25%
Fletcher Post Hole Augers, ₩ doz $36, 20%
Eureka Diggers.....₩ doz $12.50@14.00
Leed's.....₩ doz $8.00@9.00
Vaughan's Post Hole Auger, ₩ doz $13.00@14.00
Kohler's Little Giant.....₩ doz. $18.00
Kohler's Hercules.....₩ doz. 15.00
Kohler' New Champion.....₩ doz. $9.00
Schnieder.....₩ doz. $18.00
Ryan's Post Hole Diggers..₩ doz $24.00
Cronk's Post Bars, ₩ doz $60.00, 50&5@50&10%
Gibbs Post Hole Digger, ₩ doz $30.00, 50¢
Imperial, ₩ doz $15.....45%

Dividers—

See Compasses.

Dog Collars—See Collars, Dog, &c.

Door Springs—See Springs, Door.

Drawers.

Money, ₩ doz.....$18&$20

Drawing Knives—See Knives, Drawing.

Drills and Drill Stocks—

Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50,20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's.....each $2.50, 25&10@40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll's.....25%
Ratchet, Parker's.....20@20&5
Ratchet, Whitney's.....20&10%
Retchet, Weston's.....20@25%
Ratchet, Moore's Triple Action..25@30%
Ratchet, Curtis & Curtis.....30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools.....$1.75@$1.85

Twist Drills—

Morse.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%
Cleveland.....50&10&5%
Williams.....50&10&10%
New Process.....50&10&5%
Graham's Pat. Groove Shank 50&10&5%

Drill Bits.—See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans-See Pans, Dripping.

Drivers, Screw.

Douglas Mfg. Co.....20@20&10%
Disston's.....50%
Buck Bros.....30%
Stanley R. & L. Co.'s
Varnished Handles.....65&10%
Black Handles.....60&10%
Sargent & Co.'s
No. 1 Forged Blade.....60&10&10%
Nos. 20, 30 and 60.....60%&10&10%
P. S. & W.....70%
Knapp & Cowles:
No. 1.....60&20@70%
No. 2.....60&10@70&5%
No. 3.....60&5@60&10%
Nos. 4 and 00, Acme and Ideal..50& 5@50&10&5%
Stearns'.....25&10&5%
Gay & Parsons.....35%
Champion.....25&10%
Clark's Pat.....30@33⅓%
Crawford's Adjustable.....30%
Ellrich's Socket and Ratchet..25@25&10%
Allard's Spiral, new list.....25%
Kolb's Common Sense ₩ doz $6.00,25&10%
Syracuse Screw-Driver Bits...30&30&5%
Screw-Driver Bits.....₩ doz. 50@75¢
Screw-Driver Bits, Parr's.....₩ gro $6.25
Fray's Hol. Hdle. Sets, No. 3, $12.00, 25@25&10%
P. D. & Co.'s all Steel.....50%
Cincinnati.....25&10%
Brace Screw Drivers.....25&10%
Buck Bros.' Screw-Driver Bits ....

Egg Beaters.—See Beaters, Egg.

Egg Poachers.—See Poachers, Egg.

Electric Bell Sets.—See Bells, Electric.

Emery.—No. 4 to No. 54 to Flour,CF

	46 gr.	150 gr.	F. FF.
Kegs, ₩ lb	4½¢	5 ¢	2½¢
½ kegs, ₩ lb	4¾¢	5¼¢	2¾¢
¼ kegs, ₩ lb	5 ¢	5¾¢	3 ¢
10-lb cans, 10 in case	6 ¢	6¼¢	5 ¢
10-lb cans, less than 10	10 ¢	10 ¢	7½¢

Enameled and Tinned Ware—See Ware, Hollow.

Escutcheon Pins—See Pins, Escutcheon.

Escutcheons.

Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood.....25%

Expanded Metal.

List No. 5.

Lathing.....10%
Fencing, Painted Sheets.....20%
Netting, Painted Sheets.....20%
Door Mats, Galvanized.....25%
Window Guards, Paneled.....15%
Tree Guards, Paneled.....15%

Fasteners, Blind—

Mackrell's, ₩ doz. $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ₩ gr..60&10%
Van Sand's Old Pat., $15.00 ₩ gr..55&10%
Washburn's Old Pattern, ₩ gr.....$9.00
Merriman's.....new list
Austin & Eddy No. 2008 ₩ gr.....$9.00
Security Gravity, ₩ gr.....$9.00

Faucets.—

Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Frary's Pat. Petroleum.....40&5&2%
B. & L. B. Co.
West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@ 60&10&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers'
Peerless Best Block Tin Key.....40%
IXL, 1st quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Fla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring
Enterprise, ₩ doz $50.00.....20&10%
Lane's, ₩ doz $36.00.....25&10%
Victor, ₩ doz $36.00.....25&10%

Felloe Plates—See Plates, Felloe.

Fifth Wheels.—

Derby and Cincinnati.....45&5%
Brewster.....50&5%

Files—

Domestic—

Nicholson Files, Rasps, &c.....60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75% (extra prices on certain sizes)
G. & H. Barnett (Black Diamond).....60&10@60&10&5%
Other makers, best brand.60&10@60&20%
Fair brands.....60&10&10@70&5%
Second quality.....70&10@75&10%
Nicholson's Horse Rasps....60&10@60& 10&5%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Chelsea Horse Rasps, Hand Cut...50&10%

Imported—

Moss & Gamble....List, April 1, 1883, 15%
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%
Turton's.....Turton's list, 20@25%
Greaves' Horse Rasps..American list, 60%

Fixtures.

Grindstone—

Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%
P., S. & W. Co.....50&10%

Fluting Machines—See Machines, Fluting.

Fluting Scissors—See Scissors, Fluting.

Fodder Squeezers—See Squeezers, Fodder.

Forks—

Hay, Manure, &c., Asso List..65&5@65&10%
Hay, Manure, &c., Phila. List. 60@60&5%
Plated, see Spoons.

Frames—

Saw—

White Vermont.....₩ gro $9.00@10.00
Red, Polished and Varnished.....₩ doz $1.50, 25%

Screen, Window and Door—

Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons..33⅓%@ 33⅓&10%
Stearns' Frames and Corners..25@25&10%

Freezers, Ice Cream—

White Mountain.....60@60&5%
Granite State.....65@65&5%
Arctic.....70@70&5%
American.....60%
Buffalo Champion.....65@65&2 5
Shepard's Lightning.....65@65&2 5
Gem.....65%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star.....60%
Peerless and Giant.....60&10%
Zero and Pet.....65&10%
Boss.....65&10&10%
Keystone, P. D. & Co., each, $1.50....20%

Fruit and Jelly Presses—See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Funnels.

Gersdorff's Perfection, Standard and Globe; *Tin*, 1 gro., 10 %; 2 to 5 gro., 20 %; 5 to 10 gro.....30 %
Copper, 1 to 6 doz., 15 %; 6 to 12 doz., 20 %; over 12 doz.....25 %

Furnaces, Soldering.

Burgess No. 3 Gem, tin reservoir....$7.00
Burgess No. 3 Gem, copper reservoir, 8.50

Fuse—₩ 1000 ft

Common Hemp Fuse, for dry ground..$2.70
Common Cotton Fuse, for dry ground 2.85
Single Taped Fuse, for wet ground.. 3.85
Double Taped Fuse, for very wet gr. 4.85
Triple Taped Fuse, for very wet gr.. 5.60
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gates, Molasses—

Stebbin's Pattern.....75&10&5@80%
Stebbin's Genuine.....60&10&10%
Stebbin's Tinned Ends.....40&10%
Chase's Hard Metal.....50&10%
Bush's.....20%
Lincoln's Pattern.....70&70&10%
Weed's.....20&10%
Boss, ₩ doz:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10.....60&10&10%

Gauges.

Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch. 25&10%
Wire, low list.....10&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Morse's.....25%
Wire, Brown & Sharpe's.....10@20%
Wire, P. S. & W. Co.....10&10%

Gimlets—

Nail and Spike.....50&10&5%
"Eureka" Gimlets.....40&10%
"Diamond" Gimlets.....₩ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%
"Bee," ₩ gr $12.....25@25&5%

Glue—

Le Page's Liquid.....25@25&5%
Upton's Liquid.....35%
The Le Page Co.'s Improved Process 25@25&5%

Glue Pots—See Pots, Glue.

Grease, Axle.

Fraser's.....Keg ₩ lb 4¢, Pail ₩ lb 5¢
Fraser's, in boxes.....₩ gr $9.50
Dixon's Everlasting, in bxs...₩ doz 1 lb $1.20; 2 lb $2.00
Dixon's Everlasting....10-lb pails, ea. 35¢
Lower grades, special brands, ₩ gr $5.50@$7.00

Grindstones—

Small, at factory.....₩ ton $7.50@9.00

Grindstone Fixtures—See Fixtures. Grindstone.

Hack Saws—See Saws.

Hafts, Awl.

Sewing, Brass Fer.₩ gr, $3.50.....45&10%
Pat. Sewing, Short.$1.00 ₩ doz.....40&10%
Pat. Sewing, Long.....₩ doz $1.20
Pat. Peg, Plain Top.₩ gr $10.00...45&10%
Pat. Peg, Leather Top.₩ gr $12.00.45&10%

Halters.

Covert's, Rope, ½-in. Jute.....50&2%
Covert's, Rope, ½-in. Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse and Cattle Ties, 60&10&2%
Covert's Adj. Web Halters.....35&2 %

Hammers—

Handled Hammers—

Maydole's, list Dec. 1, '85.....25&10@35%
Buffalo Hammer Co.
Humason & Beckley
Atha Tool Co.
Fayette R. Plumb.
C. Hammond & Son.
Verree.
} 50@50&10%
Hartford, Nail Hammers...35&10@40&5%
Hartford, Machinists, &c.....50@50&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles.....20@25
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%

Heavy Hammers and Sledges—

3 lb and under.....₩ lb 40¢
3 to 5 lb.....₩ lb 36¢ } 70@70&10%
Over 5 lb.....₩ lb 30¢
Wilkinson's Smiths.....10¼@11¢₩ lb

Handcuffs and Leg Irons—See Police Goods,

Handles—

Atkins' No. 1 Loop, ₩ pair, 28¢; No. 13¢; No. 6, 16¢; No. 2 and No. Reversible, 18¢.

Cross-Cut Saw Handles—

Boynton's Loop Saw Handles, 50¢....60%
Champion.....15%

Iron, Wrought or Cast—

Door or Thumb.

Nos.	0	1	2	3
Per doz.	$0.90	1.00	.15	1.35

Lbs. 40&10@10

Roggin's Latches.....₩ doz 30¢@35¢
Bronze Iron Drop Latches..₩ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88 ..... net
Barn Door, ₩ doz $1.40..... 10&10%
Chest and Lifting.....70%

Wood—

Saw and Plane.....40&10@40&10&5%
Hammer, Hatchet, Axe, Sledge, &c...40%
Brad Awl.....₩ gr $2.00
Hickory Firmer Chisel, ass'd..₩ gr 4.50 / Hickory Firmer Chisel, large..₩ gr 5.00 / Apple Firmer Chisel, ass'd...₩ gr 5.00 / Apple Firmer Chisel, large...₩ gr 6.00 / Socket Firmer Chisel, ass'd..₩ gr 3.00 / Socket Framing Chisel, ass'd..₩ gr 5.00 } 40&10% dis
J. S. Smith & Co.'s Pat File 50
File, assorted..... ₩ gr 7 75 } Auger, assorted.....₩ gr 5.00 } .....50% Auger, large.....₩ gr 7.00 }
Pat. Auger, Ives'.....30&10%
Pat. Auger, Douglass..... ₩ set $1.25
Pat. Auger, Swan's..... .....₩ set $1.00
Hoe, Rake, Shovel, &c. ....50&10%

Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England...60&10&10@70
Samson Steel Anti-Friction.....55%
Orleans Steel.....55%
Hamilton Wrought Wood Track.....55%
U. S. Wood Track 65%
Champion.....60&10%
Rider and Wooster, Medina Mfg. Co.'s list.....70%
Climax Anti-Friction.....55%
Climax Anti-Friction for Wood Track55%
Zenith for Wood Track.....55%
Reed's Steel Arm.....50%
Challenge, Barn Door.....50%
Sterling's Imp'ved (Anti-Friction).65&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00..... .....50&2%
Cheritree.....50&10%
Kidder's.....50&10@60%
The Boss.....60&10%
Best Anti-Friction.....60&10%
Duplex (Wood Track).....60&10&5%
Terry's Pat., ₩ doz pr. 4 in, $10.00; 5 in. $12.00..... .....50&10%
Terry's Steel Anti-Friction Leader 50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered.....50@5%
Wood Track Iron Clad, ₩ ft. 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....50&10%
Architect, ₩ set $6.00..... .....20%
Eclipse..... .....20&10%
Felix, ₩ set $4.50..... .....20%
Richards'..... .....30@30&10%
Lane's Standard..... .....50&5@50&10%
Lane's New Standard..... .....50@50&5%
Ball Bearing Door Hanger..20&10@25&10%
Warner's Pat.....20&10@20&10&10%
Stearns' Anti-Friction.20&10@20&10&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless..... .....40@40&5%
American, ₩ set $6.00..... .....20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢..... .....40%
Paragon, Nos. 1, 2 and 3 ....40&10%
Cincinnati..... .....25&10%
Paragon, Nos. 5, 5½, 7 and 8..... .....20&10%
Crescent..... .....60@60&10%
Nickel Cast Iron..... .....50%
Nickel, Malleable Iron and Steel 40%
Scranton Anti-Friction Single Strap33⅓%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00..... .....45%
Star..... .....40&10@40&10&5%
May..... .....50&5@50&10%
Barry, $6.00..... .....40&10%
Interstate..... .....50%
Magic..... .....40%

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co. / Blood's / Hunt's / Hurd's / Mann's / Peck's / Underhill's. / Buffalo Hammer Co. / Fayette R. Plumb. / C. Hammond & Son / Kelly's / Sargent & Co. / P., S. & W. Co. / Ten Eyck Edge Tool Co. / Collins..... 40 & 10 @ 50&5 %
Schulte, Lohoff & Co.....50@50&5%

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Parker.....75&2%
Palmer.....50&5&10%
Seymour .....70&2%
Huffer 50%
Clark's, Nos. 1, 3, 5, 40 and 50 .....75&10&5@80%
Clark's Mortise Gravity.....50%
Sargent's, Nos. 1, 3, 5, 11, 13 .....75&10@55&10&5%
Sargent's, No. 12.....77&10&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's
Noiseless.....75&10%
Niagara.....80%
Buffalo.....80%
Clark's Genuine Pattern.....80%
O. S., Lull & Porter.....75&10%
Acme, Lull & Porter.....75%
Queen City Reversible....70&10&5@75%
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3..... .....75&10@2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50. .....10%

Gate Hinges—

Western.....₩ doz $4.40, 60%
N. E..... .....₩ doz $7.00, 55%
N. E. Reversible.....₩ doz $5.20, 55&10%
Clark's, Nos. 1, 2, 3..... .....60&10&5%
N. Y. State.....₩ doz $5.00, 55&10%
Automatic .....₩ doz $13.50, 50%
Common Sense..... ....₩ doz pair $4.50, 50%
Seymour's..... .....45&10%
Shepard's..... .....60&10&5%
Reed's Latch and Hinges. ₩ doz $12.00, 50%

Spring Hinges—

Union Spring and Blank Butts.....40%
Gear's Spring Hinge Co.'s list, March 1886 ....20%
Acme..... .....30%
U. S..... .....25&10%
Empire and Crown..... .....20%
Hero and Monarch..... .....55%
American, Gem, and Star..... .....20%
Oxford..... .....20%
Barker's Double Acting..... ... 25%
Union Mfg. Co..... .....25%
Bommer's..... .....30%
Suckman's..... .....15@20%
Chicago..... .....30%
Wiles'..... .....10%
Devore's..... .....40%
Rex..... .....40%
Royal..... .....60%
Reliable..... .....60%
Champion..... .....60%
Bardsley's Patent..... .....40%
Stearn's..... .....50&10%
Niagara, Holdback pattern, per gross, ...$14.00

Wrought Iron Hinges
List February 14, 1891.

Strap and T..... .....50&10%
Corrugated Strap and T.....75 & 10 %
Screw Hook and Strap. / 6 to 12 in., ₩ ℔. 4¢ / 14 to 20 in., ₩ ℔. 3½¢ / 22 to 36 in., ₩ ℔. 3¢
Screw Hook and Eye.... / ⅛ in., ₩ ℔ 7¾¢ / ⅝ in., ₩ ℔ 5½¢ / ¾ in., ₩ ℔ 4¾¢
Rolled Blind Hinges, Nos. 32 and 34 .....50&10%
Rolled Blind Hinges, Nos. 232 and 234 .....55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10%
Plate Hinges (8, 10 & 12 in., ₩ ℔.....5¢ / "Providence" (over 12 in., ₩ ℔. ....4¢

Hoes—

Eye—

D. & H. Scovil.....20%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co.,S.& O. Pat. / Am. Axe and Tool Co., S. & O. Pat..... 50&10&5 @60%
Chattanooga Tool Co., S. & O. Pat..60& 5@60&10%
Grub..... .....60&10%

Handled—

Garden, Mortar, &c..... 65&5@65&10%
Planter's, Cotton &c.....65&5@65&10%
Warren Hoe..... .....60%
Magic ... .₩ doz $4.00

Hog Rings and Ringers—See Rings and Ringers.

Hoisting Apparatus—See Machines, Hoisting.

Hollow-Ware—See Ware, Hollow.

Holders.

Bag.

Sprengle's Pat.....₩ doz $18.....60%

Bit.

Extension, / Barber's, ₩ doz $15.00.....40@40&10% / Ives, ₩ doz $20.00.....60&5@60&10%
Diagonal..... .....₩ doz $24.00, 40%
Angular..... .....₩ doz $24.00, 40&5%

File and Tool—

Bals Pat.....₩ doz $4.00; 25%
Nicholson File Holders..... 20%
Dick's Tool Holder.....20%

Hooks—

Cast Iron—

Bird Cage, Sargent's list..... / Bird Cage, Reading..... / Clothes Line, Sargent's list.. / Clothes Line, Reading list. 60&10@60&10&10%
Ceiling Sargent's list..... .....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. .....55&10@60&10%
Coat and Hat, Reading.50&10@50&10&10%

Wrought Iron—

Cotton.....₩ doz $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks). 30%
Tassel and Picture (T. & S. Mfg. Co.)..50%
Wrought Staples, Hooks, &c. See Wrought Goods.

Wire—

Wire Coat and Hat, Gem, list April, 1886..... .....50%
Wire Coat and Hat, Miles', list April, 1886..... .....50%
Indestructible Coat and Hat.....45%
Wire Coat and Hat, Standard..... .....60%
Handy Hat and Coat.....50&10%
Steady Ceiling Hooks.....50&10%
Belt..... .....80@80&10%
Atlas, Coat and Hat..... .....60%

Miscellaneous.

Grass, No. 2, $2.00; No. 3, $2.25; No. 4, $2.50
Nolin's Grass.....₩ doz $2.25
Bush..... .....55@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. .....70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American.....50%
Bench Hooks ....See Bench Stops.

Horse Nails—See Nails, Horse.

Horse Shoes—See Shoes, Horse.

Hose, Rubber—

Competition..... .....75@75&5%
Standard.....60&10&5@60&10&10%
Extra..... .....50&10@60%
N. Y. B. & P. Co., Para..... .....25&5%
N. Y. B. & P. Co., Extra..... ..10@40&5%
N. Y. B. & P. Co., Dundee....50&10 @ 60%

Huskers—

Blair's Adjustable..... ..₩ gr $8.00
Blair's Adjustable Clipper. ..₩ gr 7.00
Hubbard's Solid Steel..... .....₩ gr 4.50

Indurated Fiber-Ware—See Ware, Indurated Fiber.—

Irons.

Sad—

From 4 to 10, at factory ...₩ 100 ℔, $2.30@$2.40
Self-Heating.....₩ doz $9.00 net
Self-Heating, Tailors'....₩ doz $18.00 net
Mrs. Pott's Irons..... .....50&5%
Enterprise Star Irons..... .....50&5%
XX Cold Handle Sad Irons ....50&5%
Ideal Irons new list.50&10@50 & 10&10%
Salamander, Irons..... .....25%
B. B. Sad Irons, ₩ ℔.....3 @3¼¢
Combined Fluter and Sad Iron, ₩ doz, $15.00..... .....15%
Fox Reversible, Self-Fluter ₩ doz $24.00
Chinese Laundry (N.E. Butt Co.) 8½¢, 15%
New England..... .....8¢, 15%
Mahony's Troy Pol Irons..... .....25%
Sensible, list Jan. 91..... .....50&10&5%
Sensible Tailor's Irons..... .....33⅓ %
National Self-Heating..... .....30 %

Soldering—

Soldering Coppers..... ₩ ℔ 22 @ 23¢
Covert's Adjustable, list Jan. 1, 1886. .....35&2%

Irons, Pinking, per doz., 65¢.

Jack Screws—See Screws.

Jacks, Wagon.

Daisy..... .....33⅓%
Victor..... .....33⅓%

Kettles— Spun. Stamped.
Brass, 7 to 17 in., ₩ ℔.... 24¢ 22 ¢
Brass larger than 17 in., ₩ ℔..... 26¢ 24½¢
Enameled and Tea—See Hollow Ware.

Keys—

Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c..... .....33⅓&2%
Hotchkiss' Brass Blanks..... .....40%
Hotchkiss, Copper and Tinned..... .....40%
Hotchkiss' Pad. and Cab..... .....35%
Ratchet Bed Keys.....₩ doz $4.00, 15%
Wollensak Tinned..... .....50&10%

Knife Sharpeners—See Sharpeners, Knife.

Knives.

Butcher, Shoe, &c—

Wilson s Butcher Knives, 1st Oct. 1, 1890 .....25%
Ames' Butcher Knives..... .....25%
Foster Bros.' Butcher, &c 40%
Jordan's AAA1, Butchers', list.....net
Nichols' Butcher Knives..... .....40&10%
Ames' Shoe Knives..... .....20@25%
Ames' Bread Knives, ₩ doz $1.50, 15@20%
Moran's Shoe and Bread..... .....20%
Hay and Straw..... .....See Hay Knives.
Table and Pocket..... .....See Cutlery.
Corn, Auburn Mfg. Co. Western Pat., $2.00
Corn, Auburn Mfg. Co. Crescent.....$3.50

Corn—

Bradley's..... .....10%
Wadsworth's..... .....20%

Drawing—

Witherby / P. S. & W / Mix / New Haven..... / Merrill ....60&10@60&10&5% / Douglas..... .....75@75&5% / Watrous..... .....15&10@25% / L. & I. J. White..... .....20&5% / Bradley's..... .....35% / Adjustable Handle..... .....25@33⅓% / Wilkinson's Folding..... .....25@25&5% ..75@ 75&10 %

Hay and Straw—

Lightning...Mfrs'. price ₩ doz $18.00, 25% But jobbers cut this price freely, often selling at $8 @ $8.50.
Wadsworth's.....40&7½@40&10%
Carter's Needle.....₩ doz $11.00@$11.50
Heath's.....₩ doz $13.00@13.50
Auburn Hay, Com. and Spear Point..50%
Auburn, Straw..... .....40%
Nolin's Hay .....₩ doz.$7.00 @ $8.00

Mincing.

Am. (2d quality), ₩ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18..... .....net
Lothrop's..... .....20&10%
Smith's, ₩ doz, Single, $2.00; Double, $3 .....40@45%
Knapp & Cowles .....50&10@60%
Buffalo Adjustable..... .....₩ doz $3.00 .25%
Buffalo Double Adj'table.₩ doz $3.00 25%

Knobs—

Door Mineral..... .....60@65%
Door Por. Jap'd..... .....70@75%
Door Por. Nickel..... .....$2.00@2.25
Door Por. Plated, Nickel..... .....$2.00@2.25
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs.....40&10@50%
Yale & Towne Wood, list Dec., 1885...40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws..... .....25&10%
Base, Rubber Tip..... .....70&10&5%
Picture, Judd's..... .....60&10&10@70%
Picture, Sargent's..... .....70&10%
Picture, Hemacite..... .....35&5%
Shutter, Porcelain..... .....65&10%
Carriage, Jap..... .....₩ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c..40%

Ladies,—
Melting, Sargent's.....55&10%
Melting, Reading..... .....35&10%
Melting, Monroe's Pat...₩ doz $4.00, 40%
Melting, P. S. & W..... .....35&10@40%
Melting, Warner's..... .....30%

Lanterns—

Tubular—

Plain with Guards, ₩ doz.....$4.00@4.25
Lift Wire, with Guards.....$4.50@4.75
Square Plain, with Guards....$4.00@4.25
Sq. Lift Wire, with Guards....$4.25@4.50
Without Guards, 25¢ ₩ doz less.

Miscellaneous.

Police, Small, $6.00; Medium, $7.25; Large, $9.75..... .....20@25%

Lawn Mowers—See Mowers, Lawn.

Leaders, Cattle.

Humason. Beckley & Co.'s.....70%
Sargent's.....60%&10%
Hotchkiss..... .....30%
Peck, Stow & W. Co..... .....60&10%

Lemon Squeezers—See Squeezers, Lemon.

Lifters, Transom.

Wollensak's:
Class 3 and 4, Bronzed Iron.....50%
Class 3 and 4, Bronze Metal..... .....25%
Class 3 and 4, Brass..... .....35%
Skylight Lifters..... .....35%
Crown, Eagle and Shield..... .....50%
Reiher's, list Sept. 1, 1890.
Bronzed Iron Rods.....50&10&10&2%
Brass, Real Bronze or Nickel Plate 30%
Excelsior..... .....50&10&2%
Shaw's..... .....50&10%
Payson's:
Universal..... .....60%
Solid Grip..... .....60%
Imperial..... .....50&10%

Lines—

Cotton and Linen Fish, Draper's.....50%
Draper's and Tate's Chalk..... .....60%
Draper's Masons' Linen, 24 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25..... .....25%
Cotton Chalk..... .....55%
Samson, Cotton, No. 4, $2; No. 4½, $2.50; 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gro..... .....25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50.
Mason's Colored Cotton.... .....45%
Wire Clothes.. Nos. 12 19 20
100 ft. $4 00 $3 50 $3.00
Ventilator Cord, Samson Braided, White or Drab Cotton..₩ doz $7.50, 20%

Locks, &c.—

Cabinet—

Eagle, Gaylord Parker and Corbin... / List March, '84, rev Jan.1,'85..33⅓&2%
Delts, Nos. 36 to 39..... .....40%
Deitz, Nos. 51 to 63..... .....40&10%
Deitz, Nos. 86 to 96..... .....30%
Stoddard Lock Co..... .....80&33⅓%
"Champion" Night Latches..... .....40%
Barnes Mfg. Co..... .....40@40&10%
Eagle and Corbin Trunk..... .....25&2%
"Champion" Cab. and Combin...33⅓%
Yale..... .....net prices
Romer's..... .....25%

Door Locks, Latches, &c.

R. & E. Mfg. Co. ,list Mar.20, 1889..... / Mallory, Wheeler & Co., list July, '88..... / Sargent & Co.,list Aug.1,'88 / Reading Hardware Co., list Feb. 2,'88,..... / Brittan, Graham & Mathes, list Jan. 1890..... 65&10@70 Much lower net prices often made.
Perkins' Burglar Proof..... .....60&25%
Plate..... .....33⅓&2%
Barnes Mfg. Co..... .....40@40&10%
Yale..... .....net prices
Deitz Flat Key..... .....30%
L. & C. Round Key Latches..... .....30&10%
L. & C. Flat Key Latches..... .....33⅓&10%
Romer's Night Latches..... .....15%
Shepardson or U. S..... .....35%
Seed's N. Y. Hasp Lock..... .....25%

Padlocks—

List Dec. 23, '84..... .....75&10%
Brittan, Graham & Mathes..... .....75&10%
Yale Lock Mfg. Co.'s..... .....net prices
Eagle..... .....25&2%
Eureka, Eagle Lock Co..... .....40&2%
Romer's, Nos. 0 to 91..... .....30%
Romer's Scandinavian, &c., Nos. 100 to 505..15%
A. E. Deitz..... .....40%
Champon Padlocks..... .....40%
Hotchkiss..... .....30%
Star..... .....45%
Horseshoe.....₩ doz, $9. 40@40&10%
Barnes Mfg. Co..... .....40@40&10%
Nock's..... .....30%
Brown's Pat..... .....25%
Scandinavian..... .....90@90&10%
E. T. Fraim's Keystone Scandavian: Nos. 119, 120, 130 and 140... ..90&10% Other Nos..... .....65%
Ames Sword Co. up to No. 150..... .....40%
Ames Sword Co. above No. 150..... .....50%
Slaymaker Barry & Co.
No. 1010 line ....85&5%
No. 41 line..... .....80&10%
No. 61 line..... .....80&5%
No. 21 line..... .....75%

Sash, &c.

Clark's, No. 1, $10; No. 2, $8 ₩ gr.. .33⅓%
Ferguson's 33⅓%
Morris and Triumph, list Aug. 16, 1886, 60&2%
Victor..... .....60&10&2%
Walker's..... .....10%
Attwell Mfg. Co..... .....25&33⅓%
Reading..... .....66⅔&10@66⅔&10&10%
Hammond's Window Springs..... .....40%
Common Sense, Jap'd, Cop'd and Br'zed..... .....₩ gr $4.00
Common Sense, Nickel Plated ₩ gr $10.00
Universal..... .....80%
Kempshall's Gravity..... .....60%
Kempshall's Model..... .....60@60&10%
Corbin's Daisy, list Feb. 15, 1886..... .....70%
Payson's Perfect..... .....60@60&10%
Hugunin's Sash Balances..... .....25&5&2%
Hugunin's New Sash Locks..... .....25&5&2%
Stoddard "Practical"..... .....10%
Ives' Patent..... .....60&10@60&10&5%
Liesche's, Nos. 100 and 110, ₩ gr $8; 105, $10.00. ....20&10%
Davis, Bronze, Barnes Mfg. Co..... .....50%
Champion Safety, list March 1, 1888 ....55@55&5%
Security..... .....70%
Buckeye..... .....₩ gro $4.80

Lumber Tools—See Tools, Lumber

Lustre—

Four-ounce Bottles....₩ doz, $1.75; ₩ gross..... .....$17.00

Machines.

Boring—

	Without Augers.	Upright.	Angular.
Douglas.....	$5.50	$6.75	50%
Snell's, Rice's Pat.	5.50	6.75	40&10@10%
Jennings	5.50	6.75	45@45&10%
Other Machines...	2.35	2.75	.....
Phillips' Patent with Angers ...	7.00	7.50	.....

Fluting.

Knox, 4½-inch Rolls .....$3.25 each } 35% Knox, 6-inch Rolls.. ..$3.60 each }
Eagle, 3½-inch Roll, $2.15..... .....35%
Eagle, 5½-inch Roll, $2.85..... .....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each 35%
Crown Jewel, 6 in .....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each..... .....35%
Domestic Fluter ....each, $1.50
Geneva Hand Fluter, White Metal ₩ doz $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; $12.50; 3, $10.00. ....30%
Shepard Hand Fluter, No. 85 ₩ doz [illegible] 40%

Shepard Hand Fluter, No. 110 ₱ doz $11.00.....40%
Shepard Hand Fluter, No. 95 ₱ doz $8.00.....40%
Clark's Hand Fluter, ₱ doz $15.00.....35%
Combined Fluter and Sad Iron, ₱ doz $15.00.....30%
Buffalo ..... ₱ doz $10.00.....10%

Hoisting—
Moore's Hand Hoist, with Lock Brake.....20%
Moore's Differential Pulley Block.....40%
Energy Mfg. Co's.....25%

Washing—
Anthony Wayne, ₱ doz No. 1, $51; No. 2, $45; No. 3, $42

Mallets.
Hickory.....20&10@20&10&10%
Lignumvitæ.....20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. 30@30&10%
Mattocks. Regular list. 60&10@60&10&5%

Measures—
Standard Fiberware, No. 1, peck, ₱ dozen, $4; ½-peck, $3.50.

Meat Cutters—See Cutters, Meat.

Mills.
Coffee—
Box and Side, List Jan. 1, 1888.... 60@2%
American, Enterprise Mfg Co.20&10@30%
The Swift, Lane Bros.....20&10%

Mincing Knives — See Knives, Mincing.

Molasses Gates—See Gates, Molasses.

Money Drawers — See Drawers, Money.

Mowers, Lawn.
Pennsylvania, New Model, Excelsior, Continental, Phila., &c.. .60@60&5%
Other Machines.....60&10&5@70%

Muzzles—
Safety.....₱ dos, $3.00, 25 %

Nails.
Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, July 15,'89.....75&10%
Tack Mfrs.' list.....70%
Wire Nails, Standard Penny.
Card June 1, '89, base.....$2.35 @ $2.45

Horse—See Trade Report.

Nos.	6	7	8	9	10
Ausable....	.28¢	26¢	25¢	24¢	23¢.

40&5&2%

Clinton, Fin..	19¢	17¢	16¢	15¢	14¢..... 30%
Essex	.28¢	26¢	25¢	24¢	23¢.

25&10@25&10&10%

Lyra.	.19¢	17¢	16¢	15¢	14¢..... 30 %
Snowden	19¢	17¢	16¢	15¢	14¢..... 30 %
Putnam.....	23¢	21¢	20¢	19¢	18¢.

1000 ℔ in year 15%

Vulcan.....	23¢	21¢	20¢	19¢	18¢..12½@5%
Northwest'n.	25¢	23¢	22¢	21¢	20¢.

25@25&5%

Globe.....	23¢	21¢	20¢	19¢	18¢.

20&5&5%

Boston.....	23¢	21¢	20¢	19¢	18¢.

20&5&5%

A. C.....	25¢	23¢	22¢	21¢	21¢.

25&10@33⅓&5%

C. B.-K.....	25¢	23¢	22¢	21¢	21¢.

25&10@33⅓&5%

Maud S.....	25¢	23¢	22¢	21¢	21¢.

40&10 %

Champlain	.28¢	6¢	25¢	24¢	23¢.

25&10@10%

New Haven..	28	26¢	25¢	24¢	23¢.

25&10@25&10&10%

Saranac.....	23¢	21¢	20¢	19¢	18¢...80&10%
Champion ...	25¢	23¢	22¢	21¢	20¢.

10&10&10%

Capewell.....	28¢	26¢	5¢	24¢	23¢.

35&5@35&10%

Star.....	23¢	21¢	19¢	19¢	18¢.

10&10@10&12½%

Anchor.....	28¢	21¢	20¢	19¢	18¢..... 35%
Western....	23¢	21¢	20¢	19¢	18¢...40&10%
Empire Bronzed.					.....14 ₱ ℔.

Picture—
Brass Head, Sargent's list.....50&10&10%
Brass Head, Combination list.....50&10%
Porcelain Head, Sargent's list.50&10&10%
Porcelain Head, Combination list..40&10%
Niles' Patent.....40%

Nail Pullers.—See Pullers, Nail.

Nail Sets.—See Sets, Nail.

Nut Crackers.—See Crackers, Nut.

Nuts—
Nuts, off list Dec. 18.1889: Square. Hex.

	Square.	Hex.
Hot Pressed	5.25¢	5.85¢
Cold Punched	4.95¢	5.05¢

In packages of 100 ℔, add 1-10¢ ₱ ℔, net: in packages less than 100 ℔, add ½¢ ₱ ℔, net.

Oakum—
Government.....₱ ℔ 7@7½¢
U. S. Navy.....₱ ℔ @6½¢
Navy.....₱ ℔ 5½¢@5½¢

Oilers—
Zinc and Tin.....65&10@70%
Brass and Copper.....50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz. 10@10&5%
Malleable, Hammers, Old Pattern, same list.....40%
Prior's Pat. or "Paragon" Zinc, 60&10&10%
Prior's Pat. or "Paragon" Brass.....50%
Olmstead's Tin and Zinc.....60%
Olmstead's Brass and Copper.....50%
Broughton's Zinc.....60%
Broughton's Brass.....50%
Gem P. D. & Co.....₱ gro. $2
Steel, Draper and Williams.....50%

Openers, Can.
Messenger's Comet.....₱ doz $3.00, 25%
American.....₱ gross $3.00
Duplex.....doz 25¢, 15@20%
Lyman's.....₱ doz $3.75, 20%
No. 4 French.....₱ doz $2.25, 55@60%
No. 5, Iron Handle.....₱ gr $6.00, 45@50%
Eureka.....₱ doz $2.50, 10%
Sardine Scissors.....₱ doz $2 75@3.00
Star.....₱ doz $2.75
Sprague, No. 1, $2.00 2, $2.25; 3, $2.50 50&10&10%
Excelsior No. 1 $2.50; No. 2, $1.50.....40%
World's Best, ₱ gross, No. 1, $12.00; No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ₱ doz $3.00..... &5%
Domestic, ₱ doz $2.50..... 45%
Champion ₱ doz $2.00..... .5%

Packing, Steam—
Rubber—
Standard.....60&5@65%
Extra.....50&50&5%
N. Y. B. & P. Co., Standard..40&10@50%
N. Y. B. & P. Co., Empire.....60&5@65%
N. Y. B. & P. Co., Salamander. ₱ ℔ 65¢, 10@15%
Jenkins' Standard. ₱ ℔ 80¢,...25@25&5%

Miscellaneous—
American Packing.....10¢@11¢ ₱ ℔
Russia Packing.....11¢ ₱ ℔
Italian Packing.....13¢@14¢ ₱ ℔
Cotton Packing.....15¢@17¢ ₱ ℔
Jute.....7¢@8¢ ₱ ℔

Padlocks— See Locks.

Pails.
Galvanized Iron—

	Quarts	10	12	14
Hill's Light Weight, ₱ doz.	$2.75	3.00	3.25	
Hill's Heavy Weight, ₱ dz.	3.00	3.25	3.75	
Heiwig's.	2.50	2.75	3.00	
Sidney Shepard & Co.	2.35	2.85	3.05	
Iron Clad.	2.50	2.75	3.00	
Fire Buckets.	2.75	3.25	3.50	

Buckets, see Well Buckets.
Indurated Fibre Ware—25%
Star Pails, 12 qt.....₱ doz $6.00
Wire, Stable and Milk, 14 qt..₱ doz $7.80
Standard Fibre Ware—

	Plain.	Deer'd
Water Pails, 12 qt., per doz.	$4.00	$4.50
Dairy Pails, 14 qt., per doz.	4.50	5.00
Fire Pails, No.1, 12 qt. per doz	4.50	
Fire Pails, No.2, 14 qt. per doz	5.00	
Sugar Pails	6.00	6.50
Horse Pails	5.00	
Buggy Pails	4.00	
Slop Jars (bal. trap)	8.00	9.00
Chamber Pails, 14-qt.	6.50	7.50

Pans.
Dripping.
Small sizes.....₱ ℔ 6½¢
Large sizes.....₱ ℔ 5½¢
Silver & Co. (Covered).....40%
Fry—
Standard List:

No.	0	1	2	3	4
₱ doz.	$3.00	$3.75	$4.25	$4.75	$5.25
No.	5	6	7	8	
₱ doz.	$6.00	$7.00	$8.00	$9.00	

Polished, regular goods.....70&10%
Acme Fry Pans.....60&10%

Paper and Cloth—
Sand and Emery—
List April 19, 1886.....50&50&10%
Sibley's Emery and Crocus Cloth.....30%

Parers.
Apple.
Advance.....₱ doz $4.75
Baldwin.....₱ doz 5.25
Bonanza.....each 5.00
Champion.....₱ doz 7.25
Daisy.....₱ doz 4.00
Dandy.....each 7.50
Eureka, 1888.....each 16.00
Family Bay State.....₱ doz 12.00
Favorite.....₱ doz 5.00
Gem.....₱ doz 5.25
Gold Medal.....₱ doz 4.00
Ideal.....₱ doz 4.00
Improved Bay State..₱ doz 27.00 @ 30.00
Little Star.....₱ doz 4.50
Monarch.....₱ doz 13.50
New Lightning.....₱ doz 5.50
Oriole.....₱ doz 4.00
Penn.....₱ doz 4.00
Perfection.....₱ doz 4.00
Pomona.....₱ doz 4.00
Rocking Table.....₱ doz 6.00
Turntable.....₱ doz 4.50
Victor.....₱doz 13.50
Waverly.....₱ doz 4.00
White Mountain.....₱ doz 4.00
72.....₱ doz 4.25
76.....₱ doz 5.75
78.....₱ doz. 6.50
Potato—
White Mountain.....₱ doz $4.50
Antrim Combination.....₱ doz $5.50
Hoosier.....₱ doz $13.50
Saratoga.....₱ doz $5.50

Pencils—
Faber's Carpenters'.....high list 50%
Faber's Round Gilt.....₱ gro $5.25
Dixon's Lead.....₱ gro $4.50
Dixon's Lumber.....₱ gro $6.75
Dixon's Carpenters'.....40&10%

Picks—
Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00.....60&10@60&10&5%

Picture Nails.—See Nails, Picture.

Pinking Irons.—See Irons, Pinking.

Pins.
Box—
Humason, Beckley & Co.'s.....60&10%
Sargent & Co's...$17 and $18.....60&10%
Peck, Stow & W Co... 50&10@50&10&5%
Curtain—
Silvered Glass.....net
White Enamel.....net
Escutcheon,
Iron, list Nov. 11, 1885..50&10@50&10&5%
Brass.....60@60&5%

Pipe, Wrought Iron—
List September 18, 1889.
1¼ and under, Plain.....47½%
1¼ and under, Galvanized.....40%
1½ and over, Plain.....60%
1½ and over, Galvanized.....47½%
Boiler Tubes, Iron, all sizes.....50%

Planes and Plane Irons—
Wood Planes—
Molding.....30&2%
Bench, First Quality.....45&2%
Bench, Second Quality.....50&2%
Bailey's (Stanley R. & L. Co.)..40&10%
Iron Planes—
Bailey's (Stanley R. & L. Co.).....40&10@40&10&10%
Miscellaneous Planes (Stanley R. & L. Co.).....20&10@20&10&10%
Victor Planes (Stanley R. & L. Co.). 20&10@20&10&10%
Steer's Iron Planes.....35@35&10%
Merclen Mal. Iron Co.'s.....40@40&10%
Davis's Iron Planes.....40@40&10%
Birmingham Plane Co.....50@50&10%
Gage Tool Co.'s Self-Setting..20&10&10%
Chaplin's Iron Planes.....40@40&10%
Sargent's 30&10@30&10&10%
Standard Tool Co.....50@50&5%
Plane Irons—
Hutcher's.....$5.00@$5.25 to £
Buck Bros.....30%
Auburn "Thistle".....
Ohio.....
Sandusky.....
S. & I. J. White..... 35&2%
Plates.
Feilloe.....₱ ℔ 6¢@6½¢
Pliers and Nippers—
Button's Patent.....50@50&10%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in., $21.00 ₱ doz.....20&10@33⅓%
Humason & Beckley Mfg. Co..50@50&10%
Lindsay's Giant.....40%
Gas Pliers.....60%
Gas Pliers, Custar's Nickel Plated..60&5%
Eureka Pliers and Nippers.....40%
Russell's Parallel.....25%
P. S. & W. Cast Steel.....50%
P. S. & W. Tinners' Cutting Nippers, add 6% dis 10%
Carew's Pat. Wire Cutters.....20%
Morrill's Parallel, ₱ doz, $12.00...30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 40@40&5%
Plumbs and Levels—
Regular List.....70&10@70&10&10%
Disston's.....50%
Pocket Levels.....70&10@70&10&10%
Davis Iron Levels.....30%
Davis' Inclinometers.....10&10%
Poachers.
Egg.
Buffalo Steam Egg Poachers, ₱ doz, No. 1, $6.00; No. 2, $9.00.....25%
Silver & Co., 6-Ring, ₱ doz $4; 3-Ring $2
Pokes, Animal—
Bishop's I. X. L.....₱ doz $6.00
Bishop's O. K.....₱ doz $5.25
Bishop's Pioneer.....₱ doz $3.75
Bishop's American.....₱ doz $2.75
Eagle, Double Stale.....₱ doz $5.75
Eagle, Single Stale.....₱ doz $3.75
Buckeye, Single Stale.....₱ doz $2.75
Police Goods.
R. I. Tool Co., Handcuffs, $15.00 ₱ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₱ doz 10%
Tower's.....25%
Daley's Improved Handcuffs: 2 Hands, Polished, ₱ doz $48.00; Nickeled, $57.00: 3 Hands, Polished, ₱ doz $72.00; Nickeled, $84.00.....25%
J. P. Lovell's Police Goods.....25%
Polish, Metal.
Prestoline.....30%
Prestoline Paste.....33⅓%
Gaston's Silver Compound.....33⅓%
Polish, Stove.
Joseph Dixon's.....₱ gro $6.00, 10%
Gem.....₱ gro $4.50, 10%
Gold Medal.....₱ gro $6.00, 25%
Mirror.....₱ pro $6.00, —%
Lustro.....₱ gro $4.75
Ruby.....₱ gro $3.75
Rising Sun, 5 gro lots.....₱ gro $5.50
Dixon's Plumbago.....₱ ℔ 8¢
Boynton's Noon Day, ₱ gro.....13.00
Parlor Pride Stove Enamel..₱ gro
Yates' Liquid, 2 3 5 10 gal....
₱ gal...$0.80 .70 .60 .50
Yates Standard Paste Polish, 10-℔ cans, ₱ ℔ 12½¢
Jet Black.....₱ gro $3.50
Japanese.....₱ gro $3.50
Fireside.....₱ gro $2.50
Diamond O. K. Enamel.....₱ gro $19.00
Bonnell's Liquid Stove Polish..₱ gro $9.00
Bonnell's Paste Stove Polish..₱ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ℔ cans.....12½¢
Black Jack Water Paste, 5 and 10 ℔ cans.....12½¢
Nickel Plate Paste.....₱ gro $6.00
Crown Paste.....₱ gross, $7.20
Crown Paste, in 5 and 10 ℔ pails ₱ ℔ 12¢
Black Flag.....₱ gross, $7.20
Black Flag, 5 and 10 ℔ pails,....₱ ℔, 12¢
Black Flag, liquid, in bottles, ₱ gro..$8.00
Poppers, Corn—
Round or Square, 1 qt..₱ gr $10.00@10.50
Round or Square, 1½ qt..₱ gr $15@15.50
Round or Square, 2 qt..₱ gr $18.50@19.00
Post Hole and Tree Augers and Diggers—See Diggers, Post Hole, &c.
Potato Parers—See Parers, Potato.
Pots.
Glue—
Tinned.....40%
Enameled.....40&5%
Family, Howe's "Eureka".....40%
Family, L. F. C.'s "Handy".....50%
Presses.
Fruit and Jelly—
Enterprise Mfg. Co.....20&10@30%
Henis.....₱ doz $3.50
Shepard's Queen City.....40%
Silver & Co.....₱ doz $2.75
Pruning Hooks and Shears.—See Shears.
Pullers.
Nail.
Scranton.....₱ doz $18.00, 33⅓%
Curtiss Hammer.....₱ doz $9.00
Giant, No. 1.....₱ doz. $18.00, 10%
Giant, No. 2.....₱ doz, $15.00, 10%
Pelican.....₱ doz, $9.00, 25%
Pulleys—
Hot House, Awning, &c.....60&10%
Japanned Screw.....60&10%
Brass Screw.....50&10%
Japanned Side.....66⅔&10%
Japanned Clothes Line.....60&10%
Empire Sash Pulley.....55@60%
Moore's Sash, Anti-Friction.....50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50.....50&10&50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70.....50%
Hay Fork, "F" Common and Pat. Bushed.....20%
Hay Fork, Tarbox Pat. Iron.....20%
Hay Fork, Reed's Self-Lubricating...60%
Shade Rack.....45%
Tackle Blocks.....See Blocks
Moore's Anti-Friction 5 in. Wheel, ₱ doz $12.00.....40%
Pumps—
Cistern, Best Makers.....60@60&10%
Pitcher Spout, Best Makers.....67½@70%
Pitcher Spout, Cheaper Goods.70@70&5%
Punches—
Saddlers' or Drive, good, ₱ doz...60@65¢
Bemis & Call Co.'s Cast Steel Drive..50&5%
Bemis & Call Co's Springfield Socket.50&5%
Spring, good quality....₱ doz $2.50@2.60
Spring, Leach's Pat.....15%
Bemis & Call Co.'s Spring and Check..40%
Solid Tinners', P.S. & W. Co., ₱ doz $1.44, 55%
Tin'rs' Hollow Punches P.S. & W. Co.20&2%
Rice Hand Punches.....15%
Avery's Revolving.....40%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—
Sliding Door, Wr't Brass, ₱ ft 35¢.....15%
Sliding Door, Bronzed Wr't Iron. ₱ ft. 7¢
Sliding Door, Iron, Painted, ₱ foot 4¢, 40%
Barn Door Light. In. ½ ⅝ ¾
Per 100 feet.....$2.00 2.50 3.10, 10%
B. D. for N. E. Hangers—

	Small.	Med.	Large.
Per 100 feet....	$2.15	2.70	3.25..net

Terry's Steel Rail, ₱ foot.....4½¢
Victor Track Rail, 7¢ ₱ foot.....50&2%
Carrier Steel Rail, ₱ foot.....4½¢
Moore's Wrought Iron.....25%

Rakes—
Cast Steel, Association goods...66⅔@70%
Cast Steel, outside goods 60&10&10@70&5%
Malleable.....70@70&5%
Gibbs Lawn Rake.....$12.00, 50&15
Canton Lawn Rake.....$9.00, 50&10
Ft. Madison Prize Bow Brace and Peerless.....66%
Fort Madison Steel Tooth Lawn Rake, $6.00.....25%

Razors—
J. R. Torrey Razor Co.....20%
Wostenholme and Butcher, $10.00 to £, 10%
Jordan's A A A1, list Nov. 1, 1889.....50%
Jordan's Old Faithful, list Nov. 1, '89.50%
Electric.....List net

Razor Strops—See Strops, Razor.
Rings and Ringers.
Bull Rings—
Union Nut Co.....55%
Sargent's.....66⅔&10@70&5%
Hotchkiss' low list.....30%
Humason, Beckley & Co.'s.....70&10%
Peck, Stow & W. Co's..50&10@50&10&10%
Ellrich Hdw. Co., White Metal, low list. 50@50&10%
Hog—
Top of the Hill Ringers.....₱ doz $2.00
Top of the Hill Rings.....₱ doz $1.25
Hill's Improved Ringers ..₱ doz $1.25
Hill's Old Style Ringers.....₱ doz $1.12½
Hill's Tongs.....₱ gro $3.00
Hill's Rings.....₱ doz bxs $1.00
Perfect Rings.....₱ doz bxs $1.50
Perfect Ringers.....₱ doz $2.15@$2.25
Blair's Hog Ringers.....₱ doz $2.00
Blair's Hog Rings.....₱ doz 90¢@$1.00
Champion Ringers.....₱ doz $2.00
Champion Rings, Double.....₱ doz $2.25
Brown's Ringers.....₱ doz $2.00
Brown's Rings.....₱ doz $1.15@1.25
Electric Hog Rings.....₱ doz boxes $1.50
Electric Hog Ringers.....₱ doz $2.00
Rivets and Burrs—
Iron, list Nov. 17, '87.....40%
Copper.....50@50&10%
Coppered Iron, Bettina Brand.....40%
Rivet Sets—See Sets.
Rods—
Stair, Brass.....25&2%
Stair, Black Walnut.....₱ doz 40¢
Rollers—
Barn Door, Sargent's list.....60&10&10%
Acme Moore's Anti-Friction.....55%
Union Barn Door Roller.....70%
Rope.
Manila...½ in. and larger.....₱ ℔ 11¾¢
Manila.....⅝ in. ₱ ℔ 12¼¢
Manila.....¼ and 5-16 in. ₱ ℔ 13¼¢
Manila Tarred Rope.....₱ ℔ 11 ¢
Manila, Hay Rope.....₱ ℔ 11½¢
Sisal.....½ inch and larger ₱ ℔ 8 ¢
Sisal.....⅜ in. ₱ ℔ 8½¢
Sisal.....¼ and 5-16 in. ₱ ℔ 8¾¢
Sisal, Hay Rope.....₱ ℔ 8 ¢
Sisal, Tarred Rope.....₱ ℔ 7½¢
Sisal, Medium Lathe Yarn.....₱ ℔ 6¾¢
New Zealand..½ in. and larger ₱ ℔ 7¾¢
New Zealand.....⅜ inch, ₱ ℔ 8¼¢
New Zealand, ¼ and 5-16 inch, ₱ ℔ 9¼¢
New Zealand, Hay Rope.....₱ ℔ 7¾¢
New Zealand, Tarred Rope....₱ ℔ 7½¢
Note.—Manufacturers' prices on above ¼¢ ₱ ℔ less, f.o.b. factory.
Cotton Rope.....₱ ℔ 15@18¢ net
Jute Rope.....₱ ℔ 6¼@6½¢
Wire—
List May 1, 1886.
Iron.....32½&2½%
Iron, Galvanized.....40&2½%
Cast Steel.....40&2½%
Rules—
Boxwood.....80&10&10@80&10&10&10%
Ivory.....50@50&10%
Starrett's Rules and Straight Edges, Steel.....25&10%

Sad Irons—See Irons, Sad.
Sand and Emery Paper and Cloth—See Paper and Cloth, Sand and Emery.
Sash Cord—See Cord, Sash.
Sash Locks—See Locks, Sash.
Sash Weights—See Weights, Sash.
Sausage Stuffers or Fillers—See Stuffers or Fillers, Sausage.
Saws—
Disston's Circular.....45%
Disston's Cross Cuts.....45%
Disston's Hand.....20%
Woodrough & McParlin.
Hand, Panel and Rip.....25%
Narrow Champion Cross Cuts with Handles, ₱ foot.....20¢
Champion Thin Back Cross Cuts, ₱ foot.....28¢
Champion Extra Thin Back Cross Cuts, ₱ foot.....31¢
One Man Champion Cross Cuts, ₱ foot.....40¢
Wheeler, Madden & Clemson Mfg. Co.
Hand, Panel and Rip.....30%
Narrow Champion Cross Cuts with Handles, ₱ foot.....20¢
Champion Thin Back Cross Cuts, ₱ foot.....28
Champion Extra Thin Back Cross Cuts, ₱ foot.....31¢
One Man Champion Cross Cuts, ₱ .40¢

Atkins' Circular Shingle and Heading ..... dis 50%
Atkins' Silver Steel Diamond X Cuts ..... ₱ foot 70¢
Atkins' Special Steel Dexter X Cuts ..... ₱ foot 50¢
Atkins' Special Steel Diamond X Cuts ..... ₱ foot 32¢
Atkins' Champion and Electric Tooth X Cuts ..... ₱ foot 20¢
Atkins' Hollow Back X Cuts.. ₱ foot 20¢
Atkins' Mulay, Mill and Drag 40%
Atkins' One-Man Saw, with handles, ₱ foot 40¢
Peace Circular and Mill 45%
Peace Hand Panel and Rip 25%
Peace Cross Cuts 45%
Richardson's Circular and Mill 45%
Richardson's X Cuts 45%
Richardson's Hand, &c 25%
C. E. Jennings & Co., Hand, Panel and Rip 25%

Hack Saws—

Griffin's, complete ..... 40&10@50%
Griffin's Hack Saw, Blades ..... 40&10@50%
Star Hack Saws and Blades 25%
Eureka and Crescent 25%

Scroll—

Lester, complete, $10.00 ..... 25%
Rogers, complete, $4.00 ..... 25%
Barnes' Builders' and Cabinet Makers', $15 ..... 25%
Barnes' Scroll Saw Blades 35%

Saw Frames—See Frames, Saw.

Saw Sets—See Sets, Saw.

Saw Tools—See Tools, Saw.

Scales—

Hatch, Counter, No. 171, good quality, ₱ doz $21.00
Hatch, Tea, No. 161.... ₱ doz $6.75@$7.00
Union Platform, Plain ..... $2.10@2.20
Union Platform, Striped ..... $2.20@2.30
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka 25%
Chatillon's Favorite 40%
Family, Turnbulls ..... 30@30&10%
Riehle Bros.' Platform 40%

Scale Beams—See Beams, Scale

Scissors, Fluting 45%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $6.50 ..... 30&10%
Box, 1 Handle ..... ₱ doz $4.00, 10%
Box, 2 Handle ..... ₱ doz $6.00, 10%
Defiance Box and Ship ..... 20&10%
Foot ..... 50&10@50%
Ship, Common ..... ₱ doz $3.50 net
Ship, R. I. Tool Co 10%

Screen Window and Door Frames—See Frames.

Screw Drivers—See Drivers, Screw.

Screws.

Bench and Hand—

Bench, Iron ..... 55&10@55&10&10%
Bench, Wood, Beech ..... ₱ doz $2.25
Bench, Wood, Hickory ..... 20&10%
Hand, Wood ..... 25&10@25&10&5%
Lag, Blunt Point, list Jan. 1, 1890 ..... 75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890 ..... 75@75&10%
Bed ..... 25&5%
Hand Rail, Sargent's ..... 60%&10%
Hand Rail, H. & B. Mfg. Co ..... 70&10@75%
Hand Rail, Am. Screw Co 75%
Jack Screws, Millers Falls list ..... 50@50&5%
Jack Screws, P. S. & W 35%
Jack Screws, Sargent ..... 60&10@60&10&5%
Jack Screws Stearns' ..... 40@40&10%

Cork—

Humason & Beckley Mfg. Co ..... 40&10@50%
Williamson's ..... 33⅓@33⅓&5%
Howe Bros & Hulbert 35%

Machine—

Flat Head, Iron 55%
Round Head, Iron 50%

Wood—

List January 1, 1891.

Flat Head Iron	72½%	Extra 10 & 5% of ten given.
Round Head Iron	67½%	
Flat Head Brass	72½%	
Round Head Brass	65 %	
Flat Head Bronze	72½%	
Round Head Bronze	65 %	
Rogers' Drive Screws	83⅓%	

Scroll Saws—See Saws, Scroll.

Scythes.

Grain ..... 40&5@40&10%
Grass ..... 40&10@50%

Scythe Snaths—See Snaths, Scythe.

Sets.

Awl and Tool.

Aiken's Sets, Awls and Tools, No. 20, ₱ doz $10.00 ..... 55&10%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9 ..... 25@25&10%
Miller's Falls Adj. Tool Hdls., Nos. 1, $12. 2, $18 ..... 25%
Henry's Combination Haft ... ₱ doz $6.50
Brad Sets, No. 42, $10.50; No. 43, $12.50 ..... 70&10&5%
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50 ..... 30&10%

Nail—

Square ..... ₱ gr., $4.00@$4.25
Round ..... ₱ gr. $3.25
Buck Bros 27½%
Cannon's Diamond Point ... ₱ gr., $12, 20%

Rivet.

Regular list ..... 50&10%

Saw—

Stillman's Genuine ... ₱ doz $5.00@7.75, 40&5%
Stillman's Imita ..... ₱ doz $3.25@5.25, 40&5@40&10%
Common Lever ..... ₱ doz $2.00, 40&5%
Morrill's No. 1, $15.00; Nos. 3&4, $24.00, 40&10@50%
Leach's. No. 0, $8.00; No. 1, $15, 15@20%
Wash's ..... 20&10@20&10&10

Hammer, Hotchkiss $5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. ..... 30&5%
Bemis & Call Co.'s Lever and Spring Hammer ..... 30&5%
Bemis & Call Co.'s Plate 10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine ..... $13.00, 50&10%
Aiken's Imitation ..... $7.00, 55&5%
Hart's Pat. Lever 20%
Disston's Star 25%
Leopold ..... 40&10@50%
Atkin's Lever ..... ₱ doz No. 1, $6.00
Atkin's Criterion ..... ₱ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00 ..... 40&10%
Avery's Saw Set and Punch 50%
Chieftain H. R. Co.'s Superior ..... ₱ doz $15, 50%

Sharpeners, Knife.

Parkin s.
Applewood Handles... ₱ doz $6.00, 40%
Rosewood or Cocobolo. ₱ doz $9.00, 40%

Shaves, Spoke.

Iron 45%
Wood 30%
Bailey's (Stanley R. & L. Co.) ..... 40&10%
Stearns' ..... 30&10%
Cincinnati ..... 25&10%

Shears—

American (Cast) Iron ... 75&10@75&10&5%
Barnard's Lamp Trimmers ... ₱ doz $3.75
Tinners' ..... 20&2%
Seymour's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's Tailor's Shears 33⅓%
First quality C. S. Trimmers. 80@80&10%
Second quality C. S. Trimmers. 80&10@80&10&10%
Acme Cast Shears ..... 10&10%
Diamond Cast Shears 10%
Clipper ..... 10&10%
Victor Cast Shears ..... 75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel 40%
Chicago Drop Forge & F. Co., Solid Steel Forged 60%
Clauss Shear Co., Japanned 70%
Clauss Shear Co., Nickeled, same list. 60%
Electric ..... List net

Pruning Shears and Hooks.

Disston's Combined Pruning Hook and Saw ..... ₱ doz $18.00, 20&10%
Disston's Pruning Hook, ₱ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools 40%
Pruning Shears, Henry's Pat, ₱ doz $3.75@4.00 net
Henry's Pruning Shears, ₱ doz $4.25@4.50 net
Wheeler, M. & C. Co.'s Combination, ₱ doz $12.00, 20%
Dunlap's Saw and Chisel, ₱ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2 7.25
P., S. & W. Co 60%

Tinners', &c.—

Shears and Snips (P. S. & W.) ..... 20@25%
Snips, J. Mallinson & Co 33⅓%

Sheaves—

Sliding Door—

M. W. Co., list July, 1888. .50&10@60&5%
R. & E., list Dec. 18, 1885 ..... 55&20%
Corbin's list ..... 60&10&2%
Patent Roller ..... 60&10&2%
Patent Roller, Hatfield's 75%
Russell's Anti-Friction, list Dec., 18, 1885 ..... 60&2%
Moore's Anti-Friction 50%

Sliding Shutter—

R. & E. list Dec. 18, 1885 ..... 60&10&2%
Sargent's list ..... 60&10%
Reading list ..... 60&10&10%

Ship Tools—

L. & I. J. White ..... 20&5%

Shoes, Horse, Mule, &c.—

Horse—

Burden's, Perkins', Phœnix, at factory. $4.00

Mule—

Add $1 ₱ keg to above prices.

Ox, Wrought—

Ton lots ..... ₱ ℔ 9¢
1000 ℔ lots ..... ₱ ℔ 9½¢
500 ℔ lots ..... ₱ ℔ 10¢

Shot—

(Eastern prices 2¢ off, cash, 5 days.

Drop, ₱ bag, 25 ℔ $1.36
Drop, ₱ bag, 5 ℔ ..... .32
Buck and Chilled, ₱ 25-℔ bag 1.61
Buck and Chilled, ₱ 5-℔ bar ..... .37
(See Trade Report.)

Shovels and Spades—

Ames' Shovels, Spades, &c., list Nov. 1, 1885 ..... 20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron ..... 50&10%
Griffith's C. S. ..... 60@60&10%
Griffith's Solid C. S. R. R. Goods 20%
St. Louis Shovel Co ..... 30@20&7½%
Hussey, Binns & Co ..... 15@25%
Hubbard & Co ..... 20@20&7½%
Lehigh Mfg. Co ..... 50&10%
H. M. Myers Co ..... 30 %
Payne Pettebone & Son ..... 33⅓&5%
Remington's (Lowman's Pat. ..... 30&10&40%
Rowland's, Black Iron ..... 50&10%
Rowland's Steel ..... 60&5@60&10%

Shovels and Tongs—

Iron Head ..... 60&10@60&10&5%
Brass Head ..... 60&10&10%

Sieves—

Mann's Tin Rim ..... 50&25%
Buffalo Metallic, S. S. & Co ..... 50&25%
Shaker (Barler's Pat.) Flour Sifters ..... ₱ doz $2.00; ₱ gr $21.60
Electric ..... ₱ gr $21.60
A. & W. Sifters ..... ₱ doz 2.00
Hunter's ..... ₱ doz $2.00
Smith's Adjustable Sifters ... ₱ doz $2.00
Smith's Adjustable Milk Strainer. ₱ doz $2.00
Smith's Adjustable T. & C. Strainer. ₱ doz. $1.25

Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 18, Nested, ₱ doz..	80¢	$1.00
Mesh 20, Nested, ₱ doz..	95¢	1.10
Mesh 24, Nested, ₱ doz..	$1.15	1.25

Skeins, Thimble—

Western list ..... 75&5@75&10%
Columbus Wrt. Steel. Special net prices
Coldbrookdale Iron Co 60%
Seneca Falls Pattern 60%
Utica P. S. T. Skeins 60%
Utica Turned and Fitted 35%

Slates—

School, by case ..... 50&10@50&10&10%

Snaps, Harness, &c.—

Anchor (T. & S. Mfg. Co.) 65%
Fitch's (Bristol) ..... 50&10%
Hotchkiss 10%
Andrews 50%
Sargent's Patent Guarded ..... 70&10&10%
German, new list ..... 40&10%
Covert ..... 50&2%
Covert, New Patent ..... 50&5&2%
Covert, New R. E ..... 60&2%
Covered Spring ..... 60&10&10%

Snaths, Scythe.

List ..... 50&10@50&10&5%

Soldering Irons—See Irons, Soldering.

Spittoons, Cuspidors, &c.

Standard Fiberware—

Cuspidors, 8½-inch, ₱ doz., No. 5, $8; No. 5X $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

Spoke Shaves—See Shaves, Spoke.

Spoke Trimmers—See Trimmers, Spoke.

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp. Co.'s list.... 70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list ..... 70&10%
Buffalo S. S. & Co ..... 33⅓&2%

Silver-Plated—(4 mos. or 5% cash 30 days).

Meriden Brit. Co., Rogers ..... 40&15%
C. Rogers & Bros ..... 40&15%
Rogers & Bro ..... 40&15%
Reed & Barton ..... 40@40&5%
Wm. Rogers Mfg. Co ..... 40, 15&5%
Simpson, Hall, Miller & Co ..... 40, 15&5%
Holmes & Edwards Silver Co ... 40, 15&5%
L. Boardman & Son ..... 50&12½%

Miscellaneous.

Holmes & Edwards Silver Co.:
No. 67 Mexican Silver ..... 50&10&5%
No. 30 Silver Metal ..... 50&10&5%
No. 24 German Silver ..... 50&10&5%
No. 50 Nickel Silver ..... 50&5%
No. 40 Nickel Silver ..... 50&10&5%
Wm. Rogers Mfg. Co.
Rogers' Silver Metal ..... 50, 10&5%
18% Rogers' German Silver ..... 60&5%
22% Rogers' Nickel Silver ..... 50&5%
German Silver ..... 50&50&5
German Silver, Hall & Elton .. 50&5% cash
Nickel Silver ..... 50&5@50&10&5% cash
Britannia 60%
Boardman's N'ck'l Silver. 40&7½&5% cash
Boardman's Britannia Spoons, case lots ..... 50&12½&5% cash

Springs—

Door.—

Torrey's Rod, regular size ... ₱ doz $1.80
Gray's, ₱ gr., $20.00 ..... 20%
Bee Rod ₱ gr., $20.00 ..... 20%
Warner's No. 1, ₱ doz, $2.50; No. 2, $3.30 ..... 40&10@50%
Gem (Coil), list April 19, 1886 ..... 10%
Star (Coil), list April 19, 1886 ..... 20%
Victor (Coil) ..... 60@60&10%
Champion (Coil) ..... 60&10@60&10&10%
Philadelphia, 5 in., $5.00; 8 in., $7.75.. %
Cowell's.... No. 1, ₱ doz, $18.00; No. 2, $15.00 ..... 50%
Rubber, complete, ₱ doz, $4.50... 55&10%
Hercules 50%
Shaw Door Check and Spring. 25@30@35%

Carriage, Wagon, &c.—

Elliptic, Concord, Platform and Half Scroll ..... 60&10&10%
Cliff's Bolster Springs 25%

Squares—

Steel and Iron, Nickel-Plated ..... 80 &10%
Try Square and T Bevels... 60&10@60&10&10%
Disston's Try Square and T Bevels 50%
Winterbottom's Try and Miter.... 30&10%
Starrett's Micrometer Caliper Squares. 25%
Avery's Flush Bevel Squares 40%
Avery's Bevel Protractor 50%

Squeezers.

Fodder.—

Blair's ..... ₱ doz $2.00
Blair's "Climax" ..... ₱ doz $1.25

Lemon—

Porcelain Lined, No. 1.... ₱ doz $6.00, 25&30%
Wood, No. 2 ..... ₱ doz $3.00, 35%
Wood, Common ..... ₱ doz $1.70@1.75
Dunlap's Improved ..... ₱ doz $3.75, 20%
Sammis.... No. 1, $5.00; No. 2, $9; 12, $18 ₱ doz ..... 25&10%
Jennings' Star ..... ₱ doz $2.50
The Boss ..... ₱ doz $2.50
Dean's.. Nos. 1, ₱ doz $6.50; 2, $3.35; 3, $1.90; Queen, $2.50
Little Giant ..... 50@50&5%
King ..... 40&5%
Hotchkiss Straight Flash.... ₱ doz $12.00
Silver & Co., Glass ..... ₱ gro. $9.00

Standard Fiber Ware—See Ware, Standard Fiber.

Staples.

Blind—

Barbed, ½ in. and larger. ... ₱ ℔ 7@7½¢
Barbed, ⅜ in ..... ₱ ℔ 8@8½¢
Fence Staples, Galvanized, } Same price as B'rb Wire.
Fence Staples, Plain ..... } See Trd. Rep.

Steelyards ..... 40&10@50%

Stocks and Dies—

Blacksmith's
Waterford Goods ..... 40&10@50%
Butterfield's Goods ..... 40&10@50%
Lightning Screw Plate ..... 25&30%
Reece's New Screw Plates.... 33⅓&25@40%
Reversible Ratchet ..... 30 %
Gardner 25%

Stops, Bench.

Morrill's ..... ₱ doz $9, 50%
Hotchkiss's ..... ₱ doz $5. 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25 ..... 10&5%
McGill's ..... ₱ doz $3 ..... 10%
Cincinnati ..... 25&10%

Stone—

Hindostan No. 1, 3¢; Axe, 3½¢; Slips No. 1, 4½¢
Sand Stone ..... ₱ ℔ 2½¢
Washita Stone, Extra ..... ₱ ℔ 20@21¢
Washita Stone, No. 1 ..... ₱ ℔ 15@16¢
Washita Stone, No. 2 ..... ₱ ℔ 11@12¢
Washita Slips, No. 1, Extra.. ₱ ℔ 37@40¢
Washita Slips, No. 1 ..... ₱ ℔ 25@26¢
Arkansas Stone, No. 1, 4 to 6 in ₱ ℔ $1.50
Arkansas Stone, No. 1, 6 to 9 in ₱ ℔ $1.85
Turkey Oil Stone, 4 to 8 in ..... ₱ ℔ 40¢
Turkey Slips ..... ₱ ℔ $1.00@1.50
Lake Superior, Chase ..... ₱ ℔ 16¢
Lake Superior Slips, Chase... ₱ ℔ 31@32¢
Seneca Stone, Red Paper Brand.... ₱ ℔ 18@20¢
Seneca Stone, High Rounds.. ₱ ℔ 20@25¢
Seneca Stone, Small Whets.. ₱ gro $24.00

Stove Polish—See Polish, Stove.

Stretchers, Carpet.

Cast Steel, Polished ..... ₱ doz $2.25
Cast Iron, Steel Points ..... ₱ doz 80¢
Socket ..... ₱ doz $1.75
Bullard's ..... 25@25&10%

Strops, Razor—

Genuine Emerson ..... 60@60&5%
Imitation ..... ₱ doz $2.00, 20&10&5%
Torrey's 20%
Badger's Belt and Com ..... ₱ doz $2.00
Lamont Combination ..... ₱ doz $4.00
Jordan's Pat. Padded, list Nov. 1, '89. 50%
Electric ..... List net

Stuffers or Fillers, Sausage—

Miles' "Challenge," ₱ doz $20, 50@50&5%
Perry ..... ₱ doz, No. 1, $15.00; No. 0, $21.00 ..... 50&5@50&10%
Draw Cut No. 4, each $30.00 ..... 20%
Enterprise Mfg. Co ..... 20&10@30%
Silver's ..... 40&10%

Sweepers, Carpet.

Bissell No. 5 ..... ₱ doz $17.00
Bissell No. 7 New Drop Pan. ₱ doz $19.00
Bissell, Grand ..... ₱ doz $36.00
Grand Rapids ..... ₱ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic ..... ₱ doz $15.00
Jewel ..... ₱ doz $17.00
Improved Parlor Queen, Nickeled.. ₱ doz $27.00
Japanned ..... ₱ doz $24.00
Excelsior ..... ₱ doz $22.00
Garland ..... ₱ doz $18.00
Parlor Queen ..... ₱ doz $24.00
Housewife's Delight ..... ₱ doz $15.00
Queen ..... ₱ doz $16.00
Queen, with band ..... ₱ doz $18.00
King ..... ₱ doz $30.00
Weed, Improved ..... ₱ doz $18.00
Hub ..... ₱ doz $16.00
Cog-Wheel ..... ₱ doz $16.00
Conqueror ..... ₱ doz $22.00
Easy ..... ₱ doz $22.00
Monarch ..... ₱ doz $22.00
Goshen ..... ₱ doz $21.00

Tacks, Brads, &c.—

List Oct. 19, 1889. Standard Weights.

Carpet Tacks—

American Iron, Blued	77½%
Am'ican Iron, Tin'd or Cop'd	77½%
Steel, Plain or Bright	75%
Steel, Tinned or Coppered	75%
Swedes Iron, Blued	75%
Swedes Iron, Tinned or Cop'd	75%
American Iron Cut Tacks	75%
Swedes Ir. Uphol'rs' Tacks, Blued	75%
Swedes Iron Upholsterers' Tacks, Tinned	77½%
Gimp and Lace Tacks, Blued	75%
Gimp and Lace Tacks, Tinned	77½%
Swedes Iron Basket or Trimmers' Tacks	70&10%
Miners' Tacks	77½%
Bill-Posters' or Railroad Tacks	75%
Bill-Posters' or Railroad Tacks, Tinned	77½%
Copper Tacks	40%
Copper Finish. & Trunk Nails	40%
Cigar Box Nails	50%
Zinc Glaziers' Points	40%
Picture-Frame Points	50%
Looking-Glass Tacks	50%
Brush Tacks	60%
Tin-Capped Trunk Nails	60%
Finishing Nails	70%
Trunk and Clout Nails, Black and Tinned	72½%
Common and Patent Brads	70%
Hungarian Nails	70%
Basket and Chair Nails	65%
Leathered Carpet Tacks	40%

Extra 10 @ 10&10 %

Miscellaneous—

Double-Pointed, 120 count ..... 85&10%
Wire Carpet Nails ..... 50&10%
Plymouth Rock Steel Carpet Tacks.. 25%

Wire Brads & Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s list.....50&10%

Tapes, Measuring—

American.....40@40&5%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—

Tin Case.....80@80&10%

Thimble Skeins—See Skeins.

Ties, Bale- Steel

Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—See Shears, Tinners', &c.

Tinware—

Stamped, Japanned and Pieced, list Jan. 20 1887.....70&10@70&10&5%

Tire Benders, Upsetters, &c—
See Benders and Upsetters, Tire.

Tools.

Coopers'—

Bradley's.....20%
Barton's.....20@20&5%
L. & I. J. White.....20&5%
Alberson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Shaves, Cincinnati Tool Co.....20%

Lumber.

Ring Peavies, "Blue Line"...₩ doz $20.00
Ring Peavies, Common...₩ doz $18.00
Steel Socket Peavies.....₩ doz $21.00
Mall. Iron Socket Peavies...₩ doz $19.00
Cant Hooks, "Blue Line"..₩ doz $16.00
Cant Hooks, Common Finish..₩doz$14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₩ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₩ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.....₩ doz $12.00
Hand Spikes...₩ doz 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₩ doz., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₩ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₩ doz, 12 ft. $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₩ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks.....₩ doz $18.00

Saw.

Atkins' Perfection.....₩ doz $12.60
Atkins' Excelsior.....₩ doz $6.00
Atkins' Giant.....₩ doz $4.00

Tobacco Cutters—See Cutters, Tobacco.

Transom Lifters — See Lifters, Transom.

Traps—

Game—

Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%

Mouse and Rat—

Mouse Wood,Choker, ₩ doz holes, 11@12¢
Mouse, Round Wire.....₩ doz $1.50, 10%
Mouse, Cage, Wire.....₩ doz $2.50, 10%
Mouse, Catch-'em-alive...₩ dz $2.50 15%
Mouse, Bonanza.....₩ doz $0.90@$1.00
Mouse, Delusion.....₩ $1.00@$1.25
Rat, Decoy.....₩ gr $10.00, 10%
Ideal.....₩ gr $10.00
Cyclone.....₩ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₩ doz., 90¢; in full cases, ₩ doz.....75¢
Hotchkiss Imp. Rat Killer..₩ gro $18.50
Hotchkiss New Rat Killer...₩ gro $16.50
Schuyler's Rat Killer.....₩ gro $15.00

Triers—

Butter and cheese.....25%

Trimmers, Spoke.

Bonney's.....₩ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₩ doz. 55&10%
Douglas'.....₩ doz $9.00, 20%
Cincinnati.....25%

Trowels—

Lothrop's Brick and Plastering, 20&10&5@35%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering.....25%
Peace's Plastering.....25%
Clement & Maynard's.....20%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list, '82.....40%

Tubes, Boiler—

See Pipe.

Twine—

Flax Twine—	BC.	B.
No. 9, ¼ and ⅛ ℔ Balls	26¢	34¢
No. 12, ¼ and ⅛ ℔ Balls	25¢	33¢
No. 18, ¼ and ⅛ ℔ Balls	22¢	32¢
No. 24, ¼ and ⅛ ℔ Balls	22¢	32¢
No. 36, ¼ and ⅛ ℔ Balls	20¢	31¢

No. 264, Mattrass, ¼ and ⅛ ℔ Balls.52@54¢
Chalk Line, Cotton, ⅛ ℔ Balls.....25¢
Mason Line, Linen, ⅛ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine).....15¼¢
3-Ply Hemp, 1 ℔ Balls.....16¢@16¾¢
3-Ply Hemp, 1¼ ℔ Balls.....15¢@15¼¢
Cotton Wrapping, 5 Balls to ℔..15¢@16¢
2, 3, 4 and 5-Ply Jute, ⅛ ℔ Balls.....10¢
Wool.....6¼¢@6¾¢
Paper.....13¢@14¢
Cotton Mops, 6, 9, 12 and 15 ℔ to doz..18¢

Vises—

Solid Box.....50&10@50&10&5%

Parallel—

Fisher & Norris Double Screw.....15&10%
Stephens'.....25&30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....60&10&10%

Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....20%
Massey Quick Action.....20 @ 25 %

Saw Filers—

Bonney's, Nos. 2 & 3..$15.00.....40&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Sargent's.....66⅔&10%
Hopkins'.....₩ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%

Miscellaneous.

Combination Hand Vises.....₩ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%
Cincinnati.....25&10%
Enterprise Pipe Vises, each.....$3.00
Massey Combination Pipe.....40 %

Wagon Boxes—See Boxes, Wagon.

Washer Cutters—See Cutters Washer.

Wagon Jacks—See Jacks, Wagon.

Ware, Hollow, Enameled, &c.

Cast Iron, Hollow—

Stove Hollow-Ware—
Ground.....60&10%
Unground.....60&10&10%
White Enameled-Ware—
Maslin Kettles.....70%
Boilers and Saucepans..40&10@50&5%
Tinned Boilers and S'pans.40&10@50&5%
Rustless Hollow-Ware.....50@50&5%
Gray Enameled-Ware—
Stove.....50%
Maslin Kettles.....60&10&10%
Boilers and Saucepans.....40&5%

Enameled—

Agate and Granite Ware, list Jan. 1, 1889.....33⅓&10%
Ironclad Enameled Ware...dis 33⅓&10%

Kettles—

Galvanized Tea-Kettles—

Inch	6	7	8	9
Each	55¢	60¢	65¢	75¢

Standard Fiber—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10¼ in.	$2.00	$2.25
Wash-Basins, 12 in.	2.25	2.75
Keelers, 11¼ in.		4.00
Cuspidors		8.00
Spittoons, "Daisy," 8 in.	4.00	4.50
Peck Measure	4.00	
Half-peck Measure	3.50	

See also Pails.

Indurated Fiber—25%

Spittoons, No. 2, ₩ doz.....$9.00
Basins, Ringed, ₩ doz., No. 2, $4.80; No. 3.....$4.20
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₩ nest.....$7.50
Keelers, Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₩ nest.....$3.70
Butter Bowls 15, 17 and 19-inch (3 pieces), ₩ nest.....$2.25
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces) ₩ set.....$3.00
Dry Measures, 1, 2, 4, 8 and 16 qts. (5 pieces), ₩ set.....$3 00
See also *Pails.*

Silver Plated, Hollow—

4 mo. or 5 % cash in 30 days.

Reed & Barton } 40&5%
Meriden Britannia Co. } 40&5%
Simpson, Hall, Miller & Co. } 40&5%
Rogers & Brother. } 40&5%
Hartford Silver Plate Co } 40&5&5%
William Rogers Mfg. Co. } 40&5&5%

Washers—

Size hole	5-16	⅜	½	⅝ to 1⅜
Washers	6	5	3	3.50¢

In lots less than 200 ℔, ₩ ℔, add ¼¢, 5-℔ boxes 1¢ to list.

Wedges—

Iron.....₩ ℔ 2¼¢
Steel.....₩ ℔ 3¾¢

Weights, Sash—

Solid Eyes.....₩ ton $18@$19

Well Buckets, Galvanized—See Buckets, Well, Galvanized.

Wheels, Well.

8 in., $2.25; 10 in., $2.70; 12 in., $3.20

Wire and Wire Goods—

Iron—

Market.
Br. & Ann., Nos. 0 to 18.....75%
Cop'd, Nos. 0 to 18.....72½%
Galv., Nos. 0 to 18.....65%
Tin'd, Tinned list Nos. 0 to 18.....65%
Stone,
Br. and Ann'd, Nos. 16 to 18.....75%
Bright and Ann'd, Nos. 19 to 26.....77½%
Br. and Ann'd, Nos. 27 to 30.....80%
Tinned.....
Tinned Broom Wire, 18 to 21, ₩ ℔...5¼¢
Galvanized Fence, Nos. 8 and 9.....67½%
Annealed Fence, Nos. 8 and 9.....77½%
Annealed Grape, Nos 10 to 14.....77½%
Brass, list Jan. 18, 1884.....30%
Copper, list Jan. 18, 1884.....30%
Barb Fence.....See Trade Report
Annealed Wire on Spools.....50%
Malin'sSteel and Tin'd on Spools.....50%
Malin's Brass and Cop. on Spools.....40%
Tate's Spooled, Tinned and Annealed.55%
Tate's Spooled Cop. and Brass.....45%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to 2, 30%
Steel Music Wire, 12 to 30...60@70¢ ₩ ℔
Wire Clothes Lines, see Lines.
Wire Picture Cord see cord.

Bright Wire Goods—

Standard list.....85%

Wire Cloth and Netting.

Painted Screen Cloth, good quality. ₩ 100 sq. ft., $1.40
Galvanized Wire Netting.....70&10@75%

Wire Rope—See Rope, Wire.

Wrenches—

American Adjustable.....40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....40&10@50%
Coes' Genuine.....50&3%
Coes' "Mechanics".....50&10&3%
Girard Standard.....65&10%
Lamson & Sessions' Engineers'..60&10%
Lamson & Sessions' Standard..70&10%
P. S. & W. Agricultural.....
Girard Agricultural..... } 75& 5 @ 75 &10
Lamson & Sessions' Agric'l..
Bemis & Call's
Pat. Combination.....35%
Merrick's Pattern.....35%
Brigg's Pattern.....25%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₩ doz $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....20&10%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....50&2%
Acme, Nickeled.....40&2%
Hercules.....70%
Walker's.....55&3%
Diamond Steel.....55&3%
Cincinnati Brace Wrenches.....25&10%
Tafft's Vise Wrench.....55&10&3%

Wringers, Clothes—

List September 20, 1890, 2% cash

Wrought Goods—

Staples, Hooks, &c., list Jan. 12, 1886. 85@85&10%

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.

Linseed, City, raw..per gal.	56	@	62
Linseed, City, boiled.....	61	@	65
Linseed, Western, raw.....	54	@	..
Lard, City, Extra Winter..	51	@	52
Lard, City, Prime.....	48	@	50
Lard, City, Extra No. L....	44	@	46
Lard, City, No. 1.....	40	@	43
Lard, Western, prime.....	48	@	49
Cotton-seed, Crude, prime.	29	@	30
Cotton-seed, Crude, off grades.....	22	@	27
Cotton-seed, summer Yellow, prime.....	34	@	36
Cottonseed, Summer Yellow, off grades.....	28	@	32
Sperm, Crude.....	71	@	72
Sperm, Natural Spring.....	..	@	..
Sperm, Bleached Spring....	..	@	..
Sperm, Natural Winter.....	73	@	75
Sperm, Bleached Winter...	78	@	80
Whale, Crude.....	..	@	..
Whale, Natural Winter.....	54	@	55
Whale, Bleached Winter....	56	@	57
Whale, Extra Bleached....	58	@	59
Sea Elephant, Bleached Winter.....	63	@	64
Menhaden, Crude, Sound...	27	@	30
Menhaden, Crude, Southern	..	@	..
Menhaden, Light Pressed..	29	@	30
Menhaden, Bleached W'ter.	31	@	32
Menhaden, Extra Bleached	34	@	35
Tallow, City, prime.....	..	@	44
Tallow, Western, prime....	..	@	..
Cocoanut, Ceylon.....	6¾	@	7¼
Cocoanut, Cochin.....	8¾	@	9
Cod, Domestic.....	38	@	..
Cod, Foreign.....	..	@	..
Red Elaine.....	35	@	37
Red Saponified.....₩ ℔	4¼	@	4¾
Bank.....per gal	27	@	28
Straits.....	28	@	29
Olive, Italian, bbls.....	68	@	70
Neatsfoot, prime.....	55	@	65
Palm, prime, Lagos....₩ ℔	5¾	@	6¼

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test.....per gal	7½	@	8
Black, 29 gravity, 15 cold test.....	8½	@	9
Black, 29 gravity, summer.	6½	@	7
Cylinder light, filtered....	15	@	20
Cylinder, dark, filtered	14	@	20
Cylinder, dard, st'm refined	10	@	18
Paraffine, 23½ @ 24 gravity.	13½	@	14
Paraffine, 25 gravity.....	12½	@	13
Paraffine, 28 gravity.....	10½	@	11
Paraffine, red, 21 @ 22 gr'ty	15½	@	16
Paraffine, red,23½@23 gr'ty	13	@	14

Paints and Colors.

Barytes, Prime White..... ₩ ton.	$21.00	@	$22.50
Barytes, Amer. floated...	20.00	@	30 00
Barytes, Amer. No. 1....	19.00	@	20.00
Barytes, Amer. No. 2....	15.00	@	16.00
Barytes, Amer., No. 3....	11.00	@	13.00
Blue, Celestial..... ₩ ℔	6	@	8
Blue,C hinese	50	@	55
Blue, Prussian.....	25	@	40
Blue, Ultramarine	8	@	25
Brown, Spanish	½	@	1
Brown, Vandyke, Amer..	3	@	3½
Brown, Vandyke, English	6	@	8
Carmine, No. 40, in bulk. 3.10	@	..	
Carmine, No. 40, in boxes or barrels 3.20	@	..	
Carmine, No. 40, in ounce bottles..... 4.20	@	..	
Chalk, in bulk...₩ ton. 2.50	@	2.75	
Chalk, in bbls..₩ 100 ℔. 33	@	40	
China Clay, English.... ₩ ton.13.00	@	18.00	
Cobalt Oxide, prep'd.... 2.90	@	....	
Cobalt Oxide, black.. .... lots 100 ℔ 2.60	@	....	
Cobalt, Oxide, black.... less 100 ℔ 2.65	@	....	
Green, Paris, in bulk.....	14	@	14½
Green, Paris, 170 @ 175 ℔ kegs.....	14½	@	15
Green, Paris, small pack.	16	@	21
Green, Chrome, ordinary	8	@	11
Green, Chrome, pure...	22	@	25
Lead, Eng., B.B. white....	8½	@	10
Lead, Amn. White, dry or in oil: Kegs, lots less than 1000 ℔..		@	7½
Kegs, lots 1000 ℔ to 5 tons.		@	6¾
Kegs, lots 5 tons to 12 tons..		@	6¾
Kegs, lots 12 tons and over..		@	6¾
Lead White in oil 25 ℔ tin pails, add to keg price.		@	⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price.....		@	1
Lead, White,in oil, 1 to 5 ℔ assorted tins, add to keg price.		@	2½
Lead, Red, bbls. and ⅛ bbls....	6¼	@	7
Lead, Red, kegs.....	6¼	@	7½
Litharge, kegs.....	6½	@	7½
Litharge, bbls. and ⅛ bbls....	6¼	@	7

TERMS, &c.—Lead and Litharge.—On lots of 1000 ℔ or over, 60 days' time or 2⅛ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.35	@	1½
Ocher, French Washed.....	1½	@	2½
Ocher, German Washed...	1½	@	3
Ocher, American.....	½	@	1½
Orange Mineral, English...	9	@	9½
Orange Mineral, French....	10	@	10½
Orange Mineral, German ..	9½	@	10
Orange Mineral, American..	8	@	8½
Paris White, English Cliff stone.....	1.00	@	1.15
Paris White, American.....	70	@	75
Red, Indian, English.....	5½	@	7
Red, Indian, American....	2	@	6½
Red, Turkey.....	9	@	14
Red, Tuscan	9	@	11
Red, Venetian, American.. ₩ 100 ℔.	1.00	@	1.25
Red, Venetian, English....	1.00	@	1.50
Sienna, Italian, Burnt and Powd.₩ ℔	5	@	6½
Sienna, Ital., Burnt Lumps	1½	@	3½
Sienna, Ital., Raw, Powd..	5	@	6½
Sienna, Ital., Raw Lumps..	2	@	3½
Sienna, American, Raw....	1½	@	1¾
Sienna, American, Burnt and Powdered.....	1½	@	1¾
Tale, French.....	1¼	@	1½
Talc, American.....	90	@	1.00
Terra Alba, Fr'ch. ₩ 100 ℔	90	@	1.00
Terra Alba, English	50	@	60
Terra Alba, American No. 1	70	@	75
Terra Alba, American No. 2	40	@	50
Umber, Turkey, Bnt. and Powd.. ..... ₩ ℔	3½	@	4
Umber, Turkey Bnt. Ln	2½	@	3
Umber, Turkey, Raw and Powdered.....	3½	@	
Umber Turkey, R'w Lmps	2½	@	2¾
Umber, Turkey, Bnt. Amer.	1½	@	1¾
Umber, Turkey, R'w Amer.	1½	@	1¾
Yellow, Chrome.....	10	@	25
Vermilion, Americ. Lead..	11½	@	17
Vermilion, Quicks'er, bulk.	65	@	67
Vermilion, Quicks'er, bags.	66	@	68
Vermilion, Quicksilver, smaller pkgs.....	70	@	72
Vermilion, English Import	80	@	85
Vermilion, Imitation, Eng.	8	@	25
Vermilion, Trieste...	87½	@	90
Vermilion, Chinese.....	90	@	95
Whiting, Common. ₩ 100 ℔	40	@	45
Whiting, Gilders'.....	50	@	55
Zinc, American, dry....₩ ℔	4½	@	5
Zinc, French, Red Seal.....	..	@	8¼
Zinc, French, Green Seal...	..	@	8¼
Zinc, French, V. M. X.....	..	@	7
Zinc, Antwerp, Red Seal...	..	@	7½
Zinc, Antwerp, Green Seal	..	@	8½
Zinc, German, L. Z. O....	..	@	6¾
Zinc, V. M. in Poppy Oil,G. Seal, lots of 1 ton and over.....	10¾	@	11¼
lots less than 1 ton	11	@	11½
Zinc, V. M. In Poppy Oil, Red Seal,.....	..	@	..
lots of 1 ton and over....	10	@	10½
Lots of less than 1 ton....	10¼	@	10¾

DISCOUNTS.—French Zinc.—Discounts to buyers of 10- bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Blue, Chinese.....₩ ℔	35	@	40
Blue, Prussian.....	20	@	45
Blue, Ultramarine.....	12	@	18
Brown, Vandyke.....	7	@	12
Green, Chrome.....	8	@	13
Green, Paris.....	16	@	18½
Sienna, Raw.....	7	@	14
Sienna, Burnt.....	7	@	14
Umber Raw.....	7	@	10
Umber, Burnt	7	@	10

Spirits Turpentine.

In regular bbls	..	@	40½
In machine bbls.....	..	@	41

Glue.

Low Grade.....₩ ℔	8	@	10
Cabinet.....	12	@	14
Medium White.....	13	@	15
Extra White.....	17	@	20
French.....	10	@	23
English.....	10	@	15
Irish.....	12	@	15

CURRENT METAL PRICES.

FEBRUARY 18, 1891.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron :	
⅜ to 2 in. round and square.. 1 to 6 in. x ⅝ to 1 in.....	₩ lb 2 00 @ 2.10¢
Refined Iron :	
⅜ to 2 in. round and square.. 1 to 4 in. x ⅜ to 1½ in..... 4½ to 6 in. x ⅝ to 1 in	₩ lb 2.10 @ 2.30¢
1 to 6 in. x ¼ and 5-16	₩ lb 2.30 @ 2.50¢
Rods—⅜ and 11-16 round and sq..	₩ lb 2.20 @ 2.40¢
Bands—1 to 6 x 3-16 to No. 12.....	₩ lb 2.40 @ 2 60¢
"Burden Best" Iron, base price..	₩ lb..... 3.00¢
Burden's "H. B. & S." Iron, base price.....	₩ lb..... 2 80¢
"Ulster".....	₩ lb..... 3.00¢
Norway Bars	4.00¢
Norway Shapes	5.00¢

Merchant Steel from Store.

	Per pound.
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots.....	2¼¢
Best Cast Steel, base price in small lots	8 ¢
Best Cast Steel Machinery, base price in small lots.....	5¢

Sheet Iron from Store.

	Common American.		R. G.		Cleaned.	
10 to 16.....	₩ lb 3.00	@ 3.00¢	3.35	@	.....	¢
17 to 20.....	₩ lb 3.15	@ 3.25¢	3.35	@	3.75	¢
21 to 24.....	₩ lb 3.35	@ 3.35¢	3.60	@	.....	¢
25 and 26....	₩ lb 3.35	@	3.60	@	.....	¢
27.....	₩ lb 3.50	@ 3.62½¢	3.85	@	.....	¢
28.....	₩ lb 3.65	@ ... ¢	4.10	@	.....	¢
	B. B.		2d qual.			
Galv'd, 14 to 20,	₩ lb, 4.75	@ ...	4.60	@	.....	¢
Galv'd, 21 to 24,	₩ lb, 5.12	@ ...	5.00	@	.....	¢
Galv'd, 25 to 26,	₩ lb, 5.50	@ ...	5.35	@	.....	¢
Galv'd, 27.....	₩ lb, 5 90	@ ...	5.70	@	.....	¢
Galv'd, 28.	₩ lb, 6.25	@ ...	6.10	@	.....	¢
Patent Planished.....	₩ lb A 10¢		B, 9¢			
Russia.....	₩ lb 10½¢ @ 11¢					
American Cold Rolled B. B.....	₩ lb 5¢ @ 7¢					
Craig Polished Sheet Steel.....	₩ lb, 8½¢					

English Steel from Store.

Best Cast	₩ lb 15 ¢
Extra Cast.....	₩ lb 16½ @ 17 ¢
Swaged, Cast.....	₩ lb 16 ¢
Best Double Shear.....	₩ lb 15 ¢
Blister, 1st quality.....	₩ lb 12 ¢
German Steel, Best.....	₩ lb 10 ¢
2d quality.	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality.....	₩ lb 15 ¢
2d quality.....	₩ lb 14 ¢
3d quality.....	₩ lb 12½¢
R. Mushet's "Special".....	₩ lb 48 ¢
" "Titanic".....	₩ lb 20 ¢

METALS.

Tin.

	Per lb
Banca, Pigs.....	23¾¢
Straits, Pigs.....	22 ¢
Straits in Bars	24 ¢

Tin Plates.

				Per box.
	Charcoal Plates.—Bright.			
Melyn Grade.....	IC, 10 x 14..	....	@	$6.50
" "	IC, 12 x 12..	....	@	6.75
" "	IC, 14 x 20..	....	@	6.50
" "	IC, 20 x 28..	....	@	13.25
" "	IX, 10 x 14..	....	@	8.00
" "	IX, 12 x 12..	....	@	8 25
" "	IX, 14 x 20..	....	@	8.00
" "	IX, 20 x 28..	....	@	16.00
" "	DC, 12½ x 17..	....	@	6 00
" "	DX, 12½ x 17..	....	@	7.50
Calland Grade.....	IC, 10 x 14..	....	@	6.50
" "	IC, 12 x 12..	....	@	6.75
" "	IC, 14 x 20..	....	@	6.40
" "	IX, 10 x 14..	....	@	7.65
" "	IX, 12 x 12..	....	@	7.90
" "	IX 14 x 20..	....	@	7.65
Alloway Grade.....	IC, 10 x 14..	....	@	6.00
" "	IC, 12 x 12..	....	@	6.15
" "	IC, 14 x 20..	....	@	6.00
" "	IC, 20 x 28..	....	@	11.80
" "	IX, 10 x 14..	....	@	7.17
" "	IX, 12 x 12..	....	@	7.80
" "	IX, 14 x 20..	....	@	7.15
" "	IX, 20 x 28..	....	@	14.25
" "	DC, 12½ x 17..	....	@	5.65
" "	DX, 12½ x 17..	6.00	@	6.65
	Coke Plates.—Bright.			
Steel Coke.—IC,	10 x 14, 14 x 20,.	....	@	$5.60
	10 x 20..	....	@	7.75
	20 x 28..	....	@	11.25
	IX, 10 x 14, 14 x 20..	....	@	6.50
BV Grade.—IC,	10 x 14, 14 x 20..	....	@	5.60
	Charcoal Plates.—Terne.			
Dean Grade.—IC,	14 x 20..	....	@	$5.40
	20 x 28..	....	@	10.70
	IX, 14 x 20..	....	@	6.10
	20 x 28..	....	@	12.10
Abecarne Grade.—IC,	14 x 20...	....	@	5.10
	20 x 28....	....	@	10.35
	IX, 14 x 20....	....	@	6.10
	20 x 28..	....	@	12 10

Tin Boiler Plates.

I CX, 14 x 26.....112 sheets.....	....	@ $13.50
I CX, 14 x 28.....112 sheets....	....	@ 13.75
IXX, 14 x 31 .. ....112 sheets	....	@ 15 25

Copper.

Duty: Pig, Bar and Ingot, 1¼¢; Old Copper, 1¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem.

Ingot.

Lake..	@ 15½¢
Baltimore Grade.....	@ 13¾¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States. December 5, 1890, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		22	22	22	23	24	25	28	30
30		72	22	22	22	23	25	27	31	....
36	96		22	22	22	24	26	30	33	....
36		96	22	22	23	25	27	31	35	....
48	96		22	22	24	26	28	32	....	....
48		96	22	22	25	27	29	33	....	....
60	96		22	22	26	27	29	34	....	....
60		96	22	23	26	....	....	....	....	....
84	96		23	24	....	....	....	....	....	....
84		96	24	25	....	....	....	....	....	....
Over 84 in. wide			25	27	....	....	....	....	....	....

All Bath Tub Sheets.....	16 oz.	14 oz.	12 oz.	10 oz.
Per pound.....	$0,27	0.29	0.31	0.35

Bolt Copper, ⅝ inch diameter and over, per pound..... 22¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Copper Bottoms, Pits and Flats.

	Per pound.
14 ounce to square foot and heavier.....	26¢
12 ounce and up to 14 ounce to square foot.....	27¢
10 ounce and up to 12 ounce.....	29¢
Lighter than 10 ounce	32¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each.....	8¢
Tinning sheets on one side, 30 x 60 each.....	30¢
For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each.	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each.....	12¢
Tinning sheets on one side, other sizes, per square foot.....	2½¢
For tinning both sides double the above prices.	

Planished Brass and Copper.

14 x 48, 14 x 52, 14 x 56, 14 x 60 in.

14 and 16 oz. and heavier..33¢. By the case...32¢ ₩ lb
12 oz. and lighter.....35¢. By the case...34¢ ₩ lb
24 x 48 and 30 x 60.
14 and 16 oz. and heavier..36¢. 12 oz.....39¢ ₩ lb

Seamless Brass and Copper Tubes.

O. G.	N. G.	⅜	½	⅝	¾	⅞	1	1⅛
8-14	6-12	37	33	30	29	28	27	24
15	13	38	34	31	30	29	28	25
16	14	39	34	32	31	30	29	25
17	15	40	35	33	30	31	30	26
18	16	42	36	34	32	31	30	27
19	17	43	37	35	34	33	32	29
20	18-19	44	39	37	36	35	34	31
21	20	46	41	39	38	37	36	34
22	21	48	42	40	39	38	37	36
23	22	50	44	42	41	40	39	39
24	23	53	46	44	43	41	40	41
25	24	56	49	46	45	44	43	45

Copper Bronze and Gilding Tube, 3¢ ₩ lb additional.

Brazed Brass Tubing. (To No. 20, inclusive.

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch.....	45¢
Plain, 5-16 inch.....	45¢
Plain, ¼ inch.....	60¢
Plain, 3-16 inch.....	$1.05
Plain, ⅛ inch.....	1.50
Fancy Tubing, Brass, to No. 20, inclusive.....	43¢ ₩ lb
Bronze Tubing, 3¢ ₩ lb more than Brass.	
Discount from list.....	25 @ ... %

Roll and Sheet Brass.

(Brown & Sharpe Standard Gauge.)

Common High Brass:	in.	in.	in.	in.	in.	in.	in.	in.
Wider than	2	10	12	14	16	18	20	22
and including	10	12	14	16	18	20	22	24
To No. 20, inclusive....	.21	.22	.23	.25	.27	.29	.31	.33
Nos. 21, 22, 23 and 24.	.22	.23	.24	.24	.28	.30	.32	.34
Nos. 25 and 26.....	.22½	.23½	.24½	.27	.29	.31	.33	.35
Nos. 27 and 28.....	.23	.24	.25	.28	.30	.32	.34	.36

Common High Brass:	in.	in.	in.	in.	in.	in.	in.	in.
Wider than	24	26	28	30	32	34	36	38
and including	26	28	30	32	34	36	38	40
To No. 20, inclusive....	.36	.39	.42	.46	.50	.55	.60	.65
Nos. 21, 22, 23 and 24.	.37	.40	.43	.47	.51	.56	.61	.68
Nos. 25 and 26.....	.38	.41	.44	.48	.52	.57	.63	.71
Nos. 27 and 28.....	.39	.42	.45	.49	.53	.58	.65	.75

Brass and Copper Wire.

Old English guage standard.	Com. high brass. Per lb.	Low brass. Per lb.	Gildi'g br'ze & copper Per lb.
All Nos. to No. 16, inclusive....	$0.22	$0 26	$0.30
No. 17 and No. 18.....	.23	.27	.31
No. 19 " " 20.....	.24	.28	.32
No. 21.....	.25	.29	.33
No. 22.....	.26	.30	.34
No. 23.....	.28	.32	.36
No. 24.....	.30	.34	.38
No. 25.....	.32	.36	.40
No. 26.....	.35	.39	.43
No. 27.....	.38	.42	.46
No. 28.....	.42	.46	.51
No. 29.....	.45	.49	.54
No. 30.....	.48	.52	.62
No. 31.....	.51	.55	.67
No. 32.....	.55	.59	.73
No. 33.....	.59	.63	.82
No. 34.....	.64	.68	.95
No. 35.....	.70	.7*	1.30
No. 36.....	.76	.80	1.60
No. 37.....	1.00	1.04	1.70
No. 38.....	1.30	1.34	2.00
No. 39.....	2 00	2.00	3.25
No. 40.....	2.60	2.60	5.75

Spring Wire, 2¢ ₩ lb advance.

Copper Belt and Hose Rivets and Burrs.

	Per lb.		Per lb.
No. 5.....	49¢	No. 11.....	56¢
No. 6.....	49¢	No. 12.....	58¢
No. 7.....	49¢	No. 13.....	60¢
No. 8.....	50¢	No. 14.....	65¢
No. 9	52¢	No. 15.....	70¢
No 10.....	54¢		

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.

Western Spelter	6 @ 6¼¢
"Bertha"	8¾¢

Zinc.

Duty: Sheet, 2½¢ ₩ lb.

600 lb casks.....	7¼¢
Per lb	7½¢

Lead.

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets, 2½¢ ₩ lb.

American	@ 4¼¢
Bar.....	5 ¢ @ 5¼¢
Pipe, subject to trade discount....	7¼
Tin-Lined Pipe, subject to trade discount....	15
Block Tin Pipes, subject to trade discount.....	40¢
Sheet, subject to trade discount.....	8¢

Solder.

½ @ ½ (Guaranteed)...	16¢
No. 1.....	13¢
Extra Wiping.....	11¾¢ @ 15¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson.....	₩ lb 19 ¢
Hallett's.	17½¢

ALUMINUM.

Prices in Ingots.

$2.00 ₩ lb in lots of 1000 lb and over.
$2.25 ₩ lb in lots of 500 lb and over
$2.50 ₩ lb in lots of 100 lb and over.

For prices on Rolled Sheets, Tubing, Casting and Wire, see *The Iron Age*, December 11, 1890, page 1170.

Old Metals.

(Prices Paid in New York.)

Heavy Copper.....	₩ lb 12 ¢
Light Copper...	₩ lb 11 ¢
Heavy Brass.....	₩ lb 10 ¢
Light Brass.....	₩ lb 8 ¢
Lead.....	₩ lb 4 ¢
Tea Lead.....	₩ lb 3½¢
Zinc.....	₩ lb 3 ¢
No. 1 Pewter.....	₩ lb 16 ¢
No. 2 Pewter	₩ lb 8 ¢
Wrought Scrap Iron.....	₩ gross ton $19.00
Heavy Cast Scrap.....	₩ gross ton 12.00
Stove Plate Scrap.....	₩ gross ton 8.00
Burnt Iron....	₩ gross ton 6.00